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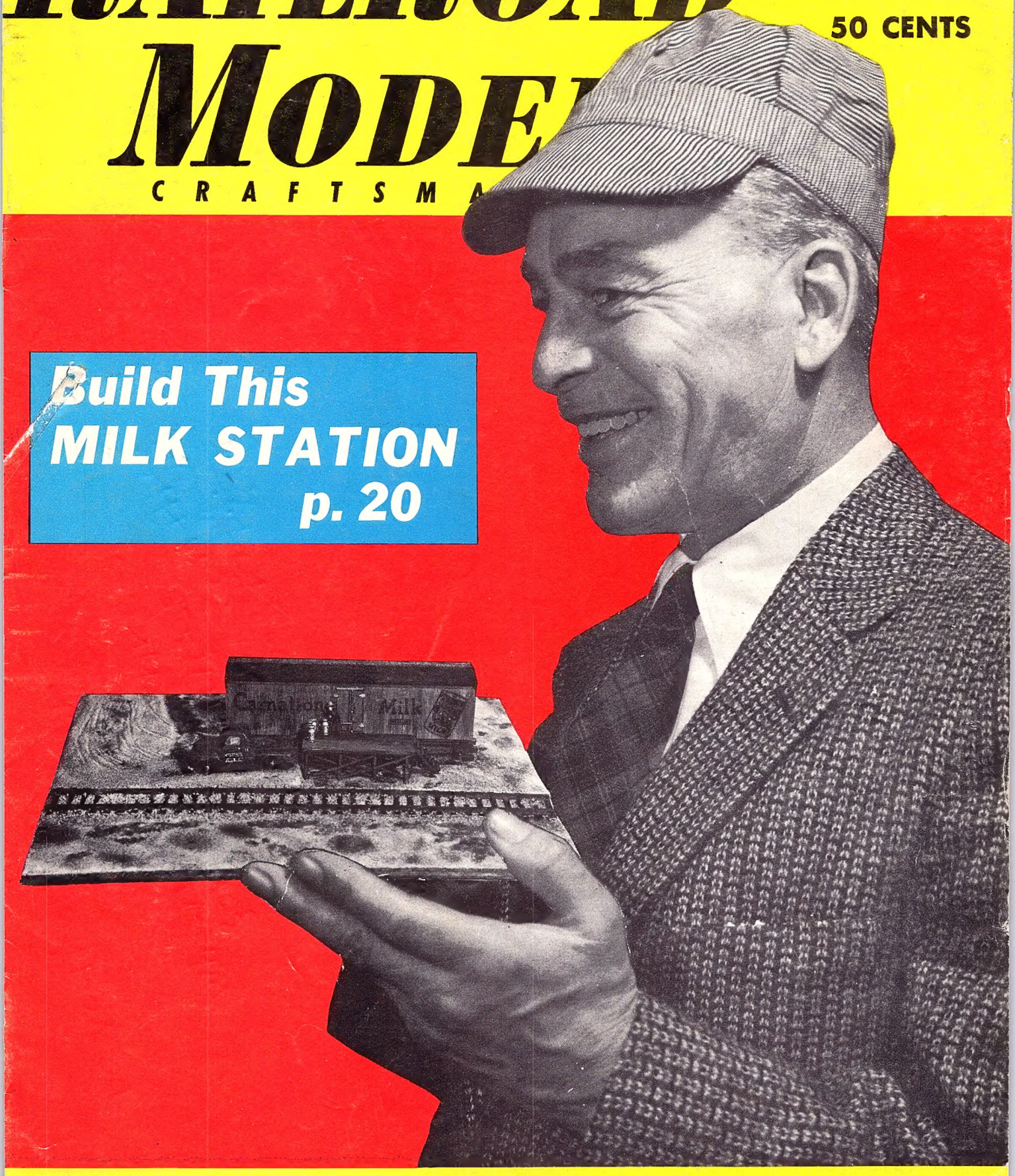

Build This MILK STATION p. 20

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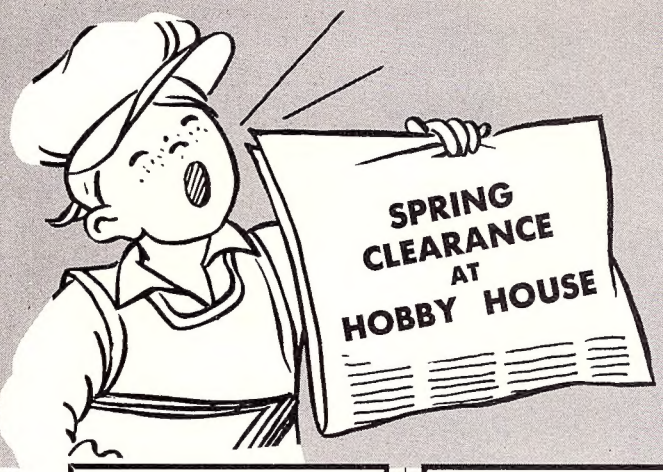

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THE COVER: After 25 years in the model railroad business, publisher Charles A. Penn knows a good model when he sees one and judging from the smile, this milk station by Lloyd Giebner more than meets with his approval. Turn to page 20 and build the milk station for your own layout. Carstens photo.

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Along The Line—Bill Schopp

FEW miniature railroaders are as well versed in model railroading as is William Schopp, of Trenton, New Jersey.

While not a real pioneer in the field, Bill's experience in HO gauge dates back to the real early days of the mid thirties and Bill can tell you of the fun he used to have with outside third rail in that gauge.

Bill first started writing for Model Craftsman back in the 'Thirties and has been a consistant contributor ever since. He's also had a number of articles published in other model railroad and mechanical publications.

Bill holds a master's degree in education and is also proficient at watchmaking, a skill that has proven invaluable in model construction.

Just how many locomotives have been turned out of the Schopp Shops is anybody's guess but there are always one or two to be found in various stages of construction in Bill's well equipped workshop. As well known as his engines and cars are his fine layout designs which run the gamut from ultra simplicity to extravaganzas which make Grand Central Terminal look like a stub end siding. The bulk of his work in RMC is designed for the average model rail, and Bill likes to place himself in that category, too. We kind of feel that his contributions to model railroading have deservedly given him the title of "The Old Master."

Next Month

LLOYD GIEBNER continues modeling the dairy industry and comes up with a dairy, giving you a place to transport your loaded milk cars to . . . Traction fans will welcome a construction article on a fine old Public Service single sash deck roof car by old time trolley modeler, Bob Van Buskirk . . . If you like Cliff Ness' E&WV 4-6-0 in this issue, you won't want to miss his DL&W 2-6-0 . . . There just isn't space to list the many other features but regardless of your pet-interest, you'll find the May RMC just chock full of the latest news and top model railroading material designed especially to interest all model rails.

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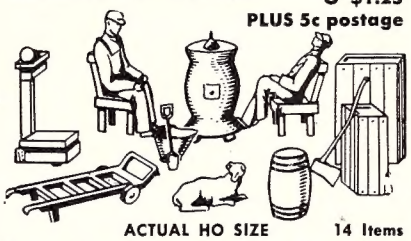

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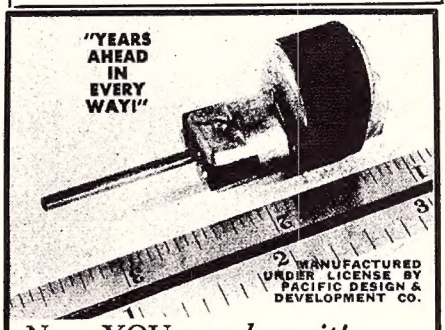

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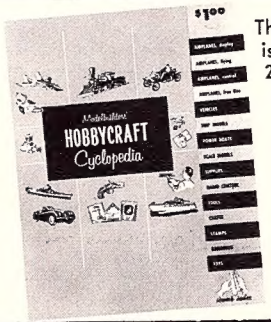

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An Opinion From Mr. Smith

Dear ol' D. S.: In your January column as to the distinction between tinplate and scale. 'Tis simple.

When ayone asks me what is the difference between a toy locomotive and a scale model locomotive I tell them!

The same difference as between a Mickey Mouse watch and a Hamilton watch!"

What *is* the difference? They're both the same size, you wear 'em on the same wrist, they tell the same time—what *is* the difference?

They usually manage to see the light with an "oh!"

Define a toy. It takes just three words—"a child's plaything." Anything *intended* as the plaything of a child is a toy. Size is wholly incidental and while for obvious reasons most toys are small, size should not be the basic definition, altho common usage often includes it, incorrectly.

Example:

A Lionel locomotive is intended for a child. It is a toy.

A Lobaugh locomotive was never intended for anyone under 35½ with less than nine college degrees. It is *not* a toy!

The defense rests.

—Robert F. Smith
Golden Valley Lines (O)
Minneapolis, Minn.

Ed's Note: Bob is so right. Bet if we'd offer him a Lionel 700EW hudson he'd turn it down in a flash. We remember hearing somewhere the percentage of sales which Lionel sells for 100% adult use. It was quite high. Bob has hit part of the answer as to the difference between tinplate and scale but we're still not satisfied. Neither is the old' D.S.

Lone Wolf in Pittsfield

I am an HO fan and at present have not started my pike into full swing. I am writing mainly in hopes that this letter will get into RMC and result in my finding at least a few other fans in Pittsfield with hopes of starting a long dreamt about club and pike. My own pike is named the Teri-ville Central, after my daughter who was supposed to be a boy, Teri-Lynne. From where I sit, model railroading is a lost hobby in Pittsfield. I would like to hear from anyone who is interested in a club in Pittsfield.

—John A. Skowron, Jr.
10 Cherry Street
Pittsfield, Mass.

Ed's Note: There was an HO club up your way but this has since been disbanded. Perhaps some of the old members might be interested in contacting you to see about getting it started again. You might also check the NMRA Yearbook which lists all NMRA members in and around that area.

Contented Railroader

Just a line to tell you (the Dispatcher) off- O-F-F that is. I'm a model railroader and enjoy the hobby very much—enough to have half of my cellar covered with trackage — tunnels — trestles — trains and tracks in TT.

The other half of my cellar has a workbench — bar — and at the far corner — the necessary apparatus for skinning and dressing various wild game — INCLUDING RABBITS, which, when shot within the legal limits of the law, are quite succulent.

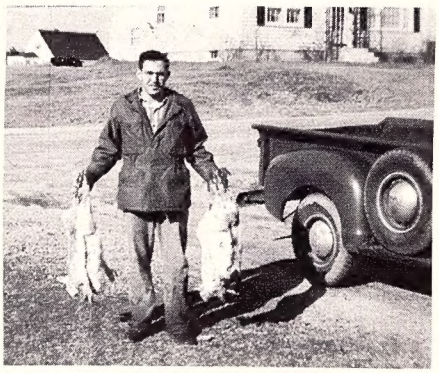
Your run-in with the wormy rabbits must have come from shooting them out of season — or in other words — were you poaching them during mating season?

Model railroading along with other types of modeling (even airplanes) is for personal pleasure and satisfaction. So is any game or sport. Enclosed is a snapshot of a very satisfied model-rail fan. I hope you never own a beagle hound.

Richard Ruifret
Exeter, N. H.

P. S. The only shooting accident I ever had was when an O gauger said you couldn't get detail on a TT locomotive—And That Was *No* Accident!

Ed's Note: Guess we'll have to have a National Be Kind To The Dispatcher Month soon. But the old guy says he still can't go for wormy Hassenpheffer.



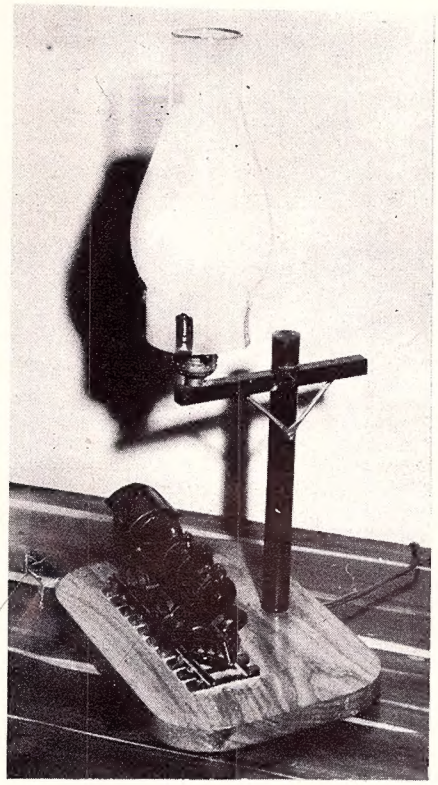
Wants an 0-8-0

Why doesn't some manufacturer come out with an 0-8-0 switcher in HO? Both NKP and N&W use a number of them.

Donald A. Coleman
Pittsburgh 6, Pa.

Ed's Note: So did the Erie, NYC, MKT, and dozens of other roads. While there are no 0-8-0 switcher kits available at this time in HO, it wouldn't be too much of a trick to convert any 2-8-0 consolidation kit into an 0-8-0. Many real roads, loaded with consolidations after the berkshire, mountain, and other heavier freight locomotives entered the picture, removed the pilot

wheels, added steps and backup light; thus creating a very useful and powerful yard engine. Try it and let us know how you make out.



An Ives Lamp

After faithfully guarding my childhood toy locomotive for years, I finally mounted it on an oak base with walnut ties, pipe telephone pole, square hollow brass crossarm with ends plugged and painted brown. The cast iron wind-up train is still in operating condition. It is an Ives No. 11 (stamped 1911). Have never known where or how to contact antique toy buyers but I assume my lamp is worth close to $100.

—Stan Shirmacher
Cottonwood, Arizona

Ed's Note: Many fans have made similar lamps using plastic Wen-Mac or Northeastern display locomotives. They're real eye catchers.

Keep Those Rails Alive

Occasionally everyday activities take up our time so completely that we have no time for our layout. We are lucky if we get it to run once a week. And what happens? Our locos go two feet and they are off the track, cars derail without apparent reason, switches refuse to throw, big gaps appear in rail joints, switches won't come together right.

It all boils down to the fact that they have been setting still too long. I contend that our roadbed has a certain amount of resiliency to it and when it is left unused for any length of time it becomes hard, so to speak.

Have you ever noticed that a house, if left vacant for any length of time, will start to deteriorate? When it is unused it loses it's resiliency and starts to fall apart at the slightest strain from rain, storms, high winds, etc.

So it is with our layouts. They are basically built of the same materials. This condition is more noticeable if the layout is located in a basement, which always contain a certain amount of dampness. I don't care how carefully the house was dampproofed. Along with this dampness comes another nuisance, oxidation. Brass, our best material for rails because of its current carrying qualities, has a bad habit of developing an oxide film on it if left unused. The same condition arises in some of our switch machines especially in the double solenoid type. A thin film forms on the sleeve that the armature slides through. Therefore our switch machines work sluggishly if left unused.

So we roll up our sleeves and go to work and get things smoothed out enough to get a locomotive to go over it without trouble. A lot of these bumps and poor contact between drivers and rail are still there but after a few runs around the layout everything smoothens itself out and the roadbed starts to get its springiness back. There seems to be a give and take between driver and rail. Our switch machines get their old slap back more and more each time we press the buttons. Our track is alive again! After a little fiddling with obstinate troubles we have things humming again. And, by golly, keep them that way. Keep those rails alive. Don't let them die again.

—Herbert Pounsberry
Clinton, Maryland

Ed's Note: Amen.

WRITING THE EDITORS

For faster answers on mail sent to *Railroad Model Craftsman,* observe the following simple rules:

1. Send all mail to Railroad Model Craftsman, Ramsey, N. J.
2. Mail sent to different departments should be placed on separate sheets of paper but may be sent in the same envelope. Putting subscription and editorial requests on the same sheet will delay the editorial query.
3. Print your own name and address clearly.
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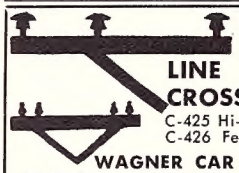

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Ideal	10.95
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Tunnel Portals (PRR, B&O, N&W)	1.15
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MISCELLANEOUS

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Retaining Wall for above LorR ea	.70
Old Time Timber Tunnel Portal	1.50
Field Stone Culvert pr.	.60
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FIGURES—ACCESSORIES

AUTHENTICAST FIGURES

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SCENIC BACKGROUND ea.	1.00
Farm Scene; Town Scene; Mountain.	
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Green Shade Tree; Cypress Tree; Orange Tree; Apple Tree; Spring; Autumn Tree	
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ORNAMENTAL FLOWERS .6 for	1.00
Red; Yellow; Blue; Green; Mixed Red & Green; Mixed Yellow & Green; Assorted	

CEMENTS

Plasticote #410M	.29
Ambroid	.30
Duo (Walthers)	.50
Model Cement	.10; .15; .25

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AUTHENTIC RR. COLORS ea.	.45

Engine Black; Reefer White; Caboose Red; Tuscan Red; Box Car Red; Roof Brown; Reefer Gray; Reefer Yellow; Reefer Orange; Pullman Green; Coach Green; Earth; Flesh; Diesel Maroon; Diesel L. Green; Diesel D Green; Diesel L Blue; Diesel D Blue; Flat Varnish: Tuscan Red SM; Diesel Gloss; Flat Varnish Diesel Purple; Silver; Copper; Gold; Brass; Glaze

Dio-Sol Thinner .25 8 oz. Can	.65

STEWART-LUNDAHL 410M

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Flat Black; Box Car Red; Reefer Yellow; Reefer Orange; Tuscan Red; Clear Gloss; Pullman Green; Coach Green; Caboose Red; Roof Brown; White; Blue; Gray; Box Car Green; Tank Yellow; Socony Red

Thinner (2oz.) .30 Thinner (8 oz.)	.65
High Ball Spray Black 1.29; Nozzle	.10

MISCELLANEOUS

Track Cleaner	.98
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BOOKS

Atlas Track & Layout	.10
Operating Manual	2.00
How to Wire Model RR. (Wescott)	2.00
"To Run Mdl. RR (Boomer Pete)	2.00
Model RR. Encyclop. (Kalmbach)	6.00
Track and Layout (Kalmbach)	2.00
Prac. Guide to Model RR"	2.00
Introd. to Scale" (Wescott)	.25
Fun with Model Railroads	.15
Model Cars, A Locos	1.00
How to Wire Supplement	.75
Small RRs. U Can Build	1.00

MFG. CATALOGS

Mantua Encyclopedia	.35
Walther Catalog	.50
Penn Line, Model Die Casting ea.	.25
Marklin or Authenticast ea.	.35
Varney, Athearn, Hobbyline, Tru-Scale, Selley, Suydam, Faller, Ayres, Ulrich, Pioneer, Summit, Model Rectifier, Kemptron, Silver Streak, Fleischmann, Alexander ea.	.10

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14 Day FREE Examination WITH FULL MONEY BACK GUARANTEE!

Any unused item purchased from us can be returned in 14 days for complete refund or exchange.

ORDER NOW! GET ALL THE AHC "EXTRAS"

LOOK

TT GAUGE FANS

Room does not permit complete listing of TT equipment. Among the lines handled: H-P PRODUCTS (catalog 10¢); GANDY DANCER (catalog 35¢); A.L. Co. Road Bed (free catalog); KEMTRON, etc., etc. All items included in our new catalog.

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Send payment in full. No stamps, no C.O.D.'s.

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WE DUPLICATE ANY OFFER made by any other advertiser. Attach ANY ad to your order—and take advantage of the AHC "extras."

READ THIS ENTIRE MAGAZINE FROM COVER TO COVER . . . EVERYTHING ADVERTISED CAN BE ORDERED FROM AHC.

AMERICA'S HOBBY CENTER, Inc.

Branches Coast-To-Coast

1931 **24th YEAR** 1955

America's Largest Source of Models & Supplies

AHC Money Savers

Double Slip Switch
A real honey. Completely assembled and wired. Mounted on wooden roadbed (with ties). Made to N.M.R.A. specifications. **$10.50**

LOOK! special bargain offer

Here's the bargain-gift offer that had us swamped at Christmastime! Now . . . in answer to your many requests and letters—"Operation CHRISTMAS GIFT" continues. It's the most tremendous bargain ever. LOOK SEE!

GIFT NO. 1 COSTS YOU ONLY **25¢** with every order of $5.00 or over.

HERE'S WHAT YOU GET:

AHC 5-in-1 Track Gauge • 12 Fishplates • AHC Track Cleaner • 2 AHC Terminal Connectors • Parts Box • Tube of Cement • 32 Decals HO Right of Way Signs • HO Manual "GUIDE TO MODEL RR"

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You Get Everything in **GIFT #1 . . . PLUS**

AHC All-Gauge Track Plan Designer • 2 Artist Brushes #1 & 2 • 6 HO Farm Animals.

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You Get Everything in **GIFTS #1 and 2** *PLUS* . . . Set of 7 RR. Paints • Set of 12 Jewelers Files • 50 Ft. Hook-Up Wire.

SAVE

REG. ~~89¢~~ **69¢**

SET OF 7 RR. PAINTS
1/6 oz. bottles. Made by a leading mfgr. One each of Tuscan red, Box Car red, Reefer yellow, Reefer orange, Caboose red, Thinner and Engine black.

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VALUE ~~$5.65~~ **1.98**

HO RHEOSTAT
40 ohm, 50 watt. Mfgd. by DeJur. Ceramic insulation. Comparable to those selling as high as $5.65.
50 ohm, 75 watt Ohmite Rheostat.... 2.98

REDUCED

REG. ~~35¢~~ **25¢**

AHC 5-in-1 GAUGE
All metal combination utility tool for checking not only HO track gauge, but guard rail spacing, spike projection, wheels and flange thickness. A wonderful gadget!

SPECIAL

WAS ~~$2.25~~ **1.49**

Imported Swiss Precision Screwdrivers
Six separate and individual screwdrivers, #s 0-1-2-3-4-5. Colored heads for easy identification.

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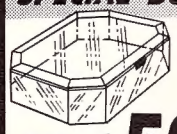

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Handy transparent plastic parts boxes with hinged tops. Measures 1¾" x 2¼" x ¾" high. Ideal for small parts storage.

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Complete with two colored G.E. miniature bulbs, mounting screws, number strips, full instructions.

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IMPORTED SWISS PATTERN JEWELER'S **FILES** **35¢** EACH

Your choice of round, ½ round, flat, oval, knife, square, 3-sided, equalling, barette, flat oval, triangle or diamond.
SET OF 12 (above) **$2.39**
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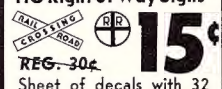
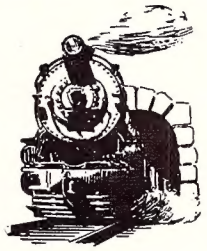
HO Right of Way Signs



~~REG. 30¢~~ **15¢**

Sheet of decals with 32 signs (10 different kinds) usually found around railroad yards.

TURN PAGE FOR MORE AHC SUPER BARGAINS AND HANDY ORDER FORM



DISPATCHERS REPORT

WE'RE starting this month's Report off with a tip of our railroad hat to a small but active club up Canada way: The Kent Miniature Railroad Club, Chatham, Ontario. The Kent Club got the idea that they should offer some kind of a service to their community and decided that they would build a complete Lionel Model Railroad for use at the Cerebral Palsy Center, thereby providing a source of amusement and pleasure to the children at the Center. Tinplate was chosen for it's durability and all of the members chipped in on the project. Newspaper support was provided, and brought in many donations of unused equipment, some of which was repaired by members. The club feels that they're doing the community a service and they also had a whale of a time building the pike, and they recommend that other clubs try simlar programs. We'd certainly like to hear from any other groups doing such work.

Along somewhat similar lines, the New York Society of Model Engineers again held open house for thousands of New York area Cub Scouts. Can't think of a better way of arousing interest in our swell hobby than starting them off young... We like that new Atlas hookup wire which is just the thing for conecting switch machines to the control board. It has three wires, color coded, and all fused together. Keeps those under the table wires neater looking and eliminates confusion.

Dick Abbott, of the PCR, took us to task for a recent statement that Arizona was an outcast in its region. Says it just isn't so and that many of the most active members come from Arizona. Guess the Old Dispatcher will have to award himself 3 demerits while standing on the old carpet . . . Dick Abbott, incidently, has one of the really nice HO pikes out on the coast; was written up a few years back in RMC.

Don't ever remember seeing so many model railroad passes before, ever, as have been pouring into RMC's editorial offices recently. Some are plain, so are mimeographed, and many are really fancy printing jobs. We kind of wish that fans having passes printed up would include on the pass the address of the "general offices" and the gauge in which the pike operates. Even a telephone number would be a good idea. In this way, passes might actually be put to a really good, practical use. Of course, we wonder how many of these model railroad passes actually have an operating pike behind them. The only hobbiests that we know who have similar cards are radio hams and they usually have them decorating their railroad room. The crew at RMC really appreciate receiving these passes and feel free to use the Swapper's Column to enlarge your collection.

Herb Harnish, 4227 Holton Ave., Ft. Wayne 5, Ind., writes on some beautifully printed stationary that he prints model railroad passes using special old time typefaces, in exchange for car kits and other railroadiana. This sounds like the man that John L. Daniels, of Phila., should contact.

Visited several rail fans recently at their homes and was quite surprised to find that they have gone in for building mantlepiece display models. Without too much labor, they can assemble attractive models by Wen-Mac, Northwestern, Strombecker, and Globe. Now wait'll they discover Snap-It type track and I'll bet they become operating model builders, too.

With spring just around the corner, and already here in many parts of the country, there will be increasing outdoor activity. A new outdoor railroad is being built at Roadside America to haul both adults and children. It's being designed by Col. Howard G. Hill, a consulting engineer who de-

signed the 2-8-2 mikado type locomotives used by the United States Army during World War II. Now there is a gentleman who can probably rattle off some darn interesting stories about railroading. If you've never been to Roadside America it's well worth the trip, being located in the heart of the beautiful Pennsylvania Dutch country of Pennsylvania, near Shartlesville.

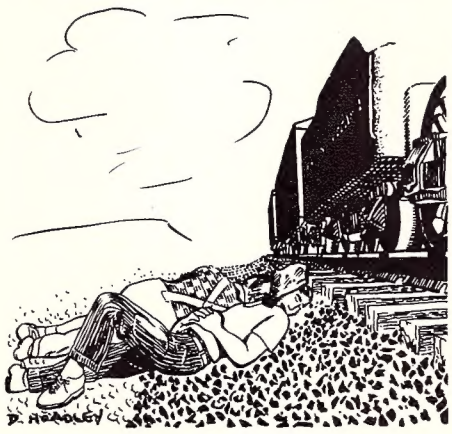
Edward P. Haines, of Philadelphia, comments that he'd like to see the RMC Directory series list items according to quality. This would be quite a task and would arouse a terrific amount of controversy in our opinion. Would you consider kits made of plastic as poor quality just because you don't like plastic? Or would you say that a kit utilizing fine bronze castings was poor because the castings were not finished, drilled, and tapped. And would a kit of cardboard and wood be good or bad if sold at a low price? We frequently find ourselves in disagreement with Consumer's Research on various items. Certainly if such a thing were attempted model railroad-wise, the results would lead to nothing short of a terrific battle. Comments, anyone?

How many readers go in for power tools? Builders in the smaller gauges don't bother too much but many O gaugers and live steam fans find them essential to fuller enjoyment of their hobby. If you'd like to read open a wonderful new lathe send for the Bulletin listed under New Literature, available from South Bend Lathe Works. With this new tool, you'll be able to make and finish off many of your own locomotive and car parts.

Eastern Traction Models is back with a number of new HO trolley items. We mentioned some months ago that there would be an upsurge in traction activity and you can now by fine kits in O, S, HO, and even TT. A number of new traction items arrived just too late to be included in the Traction Directory last month and so they will be reviewed in the Test Track Column very shortly. Wagner Car Co. has reintroduced the former ICC line of HO interurban and passenger coach body kits and offers many fine O gauge cars custom built to your own requirements. Dick Wagner's custom built trolleys capture just about all of the grace and beauty that trolley fans find so fascinating in a traction model and to have one of his cars on your line is akin to having a big Lobaugh or Icken engine on an O gauge steam line.

British Railways had a safety record of only one passenger fatality in every bilion passenger miles. How many ants, spiders, and mice, have been exterminated by trains on your pike? . . . Traction fan friend of ours has a cat that delights in walking the track with her tail rubbing the overhead trolley wire . . . A. C. Gilbert Co. suing several retailers for violations of fair trade agreements on their American Flyer train line.

Total membership in the National Model Railroad Association is now over 11,000. In addition to a national convention each year, there are a number of regions which have spring and fall gatherings conveniently located for just about everybody. We'd recommend you plan on taking in the nearest regional meet on one of these pleasant spring weekends and take the frau. The gals always manage to take a tour of something or other.



NEW CLUBS

OAKVILLE, ONTARIO. Junior model railroaders in the 13-16 year age group interested in starting a model railroad club in the Oakville area, contact Dave Parker, 57 Reynolds St., N., Oakville, Ont.

NOTE TO CLUB SECRETARIES: Items submitted to Coming Events should be sent in at least 6 weeks before the event to be held. Send to Railroad Model Craftsman, Ramsey, N. J.

COMING EVENTS

GERBER, CALIF. Mar. 26, Apr. 2, 8 PM. Mar. 27, Apr. 3, 3 PM. Spring Show South Shasta Model RR, O gauge 2 rail scale. Only one show each date, running time 1½ hrs. At G. A. Humann ranch 1½ miles southeast of Gerber. Admission, a donation.

FLINT, MICH., May 21-22. North Central Regional convention. At Hotel Durant. Events include fantrip, movies, clinics, model show, displays, and open house at 15 home layouts (all gauges from 1½" scale live steam to HO trolley). Banquet and business meeting. Hosts, Flint Model RR Club, and Flint SMRRE. Harry Williams, conv. secy., 2211 Concord St., Flint, Mich.

COLUMBUS, OHIO, May 13-15. Mid-Central Region Spring Convention, NMRA. At The Southern Hotel. Hosts are the Columbus Model RR Club, HO and O gauge divisions, and the Central Ohio Rail Fans Museums. Club pikes in HO and O will be in operation. Model contest and exhibits. Feature of convention will be trip to Central Ohio Rail Fans Museum in Worthington where prototype traction equipment is operated. Details from J. P. Dean, 1450 Haines Ave., Columbus 12, Ohio.

SAN DIEGO, CALIF., Apr. 29, 30, May 1. Pacific Coast Region NMRA regional meet. The coast division PCR also meets at Alameda, Calif., May. 15, at the Alameda Terminal RR Club. PCR, incidently, now numbers about 450 members.

NEW LITERATURE AVAILABLE

BINKLEY MODELS CATALOG. 20 pages illustrated, lists all Binkley cars and parts in HO and HOn3. Each car listed has brief biographical description. Also contains some narrow gauge information. Price 10c. Binkley, Dept. RM, Box 31, Inglewood, Calif.

TRACTION MODELING SUPPLIES, Bob Treacy, 5142 Thomas St., Maple Heights, Ohio. Latest 9 page listing of O gauge traction supplies lists most major O mfgrs. of kits and hard to get traction parts. Send 3c stamp.

EASTERN TRACTION MODELS LIST No. 1. A listing of old and new kits now available from Eastern Traction Models in HO gauge. Most of the metal kits are available ready to run unpainted. Mfgr. also has many cast ends and other parts. List for stamp. Eastern Traction Models, Pine Hill Terrace, Stamford, Conn.

MOTOR DRIVE LATHES, SELF CONTAINED. Bulletin 5442 on 9" and 10" swing lathes with both quick and standard change gear models. Specifications. Bulletin will be mailed on request from South Bend Lathe Works, South Bend, Indiana.

REMOVING FLANGES

Considerable has been written about the advantages of not having flanges on the center sets of drivers on a 2-6-0, 2-8-0, 4-8-4, 2-8-4, or any steam loco with more than four drivers. Some kits come with the center drivers "blind" while others do not. When all flanges are present the engine gets somewhat better traction, but will not be able to negotiate a sharp model railroad curve. For instance a six coupled HO gauge engine will only take an 18" radius with all flanges present, yet will take down to 12" radius when the center drivers are blind (leading and trailing truck and tender drawbar permitting, of course).

If your engine has blind drivers, fine, but if it does not you may be "up a tree" if the manufacturer does not also list blind drivers of the same size and type. It has often been recommended in print that you can secure the engine upside down, turn on the power, and file off the flanges while the motor and gears turn the drivers right in their own bearings. This is fine in theory, but in practice takes a terrifically long time, is hard on the motor, on the wheels (you may loosen an insulated tire), and on the side rods especially if they are cast. If you do not have access to a lathe, a better stunt is to remove the desired pair of wheels and file the flanges off while holding the wheels in your hand. File down as close to the tread as you can, and even if you nick the tread a little no great harm will be done. This will leave you with a very slight flange that is made up of many small straight portions, and while this can be further smoothed up by hand with a file here is where it is good to replace wheels in engine and use the loco's motor for power. This way you have only a little bit of metal to file off under the tiny 12 volt motor's power and you are less likely to do harm.

The ideal way to remove flanges is in a lathe, but at that it is rather tricky if you have only a three or four jaw chuck. A collet of the right size, which you doubtless would not have, would make the task easy, but in a three jaw chuck the hard thing to do is to get the wheel flat since you cannot use the flange itself as a stop, for it must be turned or filed off. Unless you do get the wheel perfectly flat and true in a three jaw chuck it is better to file the flange off than to turn it off since the latter might then make the wheel eccentric on its axle. A far better way which requires a little more work is to bore out a piece of tubing for a snug fit for the wheel tread, slit the tubing, then place the wheel in it and catch the tubing in the three jaw chuck. You can then use the end of the tubing as a stop to get the wheel flat and can indeed turn off a little of the tubing with the flange.

If you happen to have a loco with sprung drivers which in HO are becoming increasingly rare—Varney superseries and Winton's are about all that ocur to me—then it may be dangerous to remove flanges from center drivers since on sharp curves the springing may force the wheels down beside the rail. This will then derail the loco when it reaches straight track or a switch.

Sensational Offer! IT MAY SOUND "CRAZY"... BUT

We'll PAY YOU to send for our new catalog!

JUST OFF THE PRESS!

NEW 64 PAGE CATALOG

NO . . . we're not "crazy." We want every reader of this magazine to have a copy of our brand new catalog . . . and we're willing to pay for it. See our sensational offer! The 2-color catalog is exclusively HO and TT "RAILS" . . . over 5000 items, fully illustrated . . . with pages and pages of informative data, charts, etc.

Send only 50¢
For Our New Jumbo Catalog & Get a
$1.00 CREDIT
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LOOK!

32 PAGE FULLY ILLUSTRATED
"GUIDE TO MODEL RAILROADING"
The How-to-do-it Manual of HO

Contains a Wealth of Information . . . Including:
Building a Complete Model Railroad • Wiring your Layout • Trouble-shooting your Locomotive • Track Work Tips • How to Build Scenery • Track Layouts • Tips on Painting your Equipment . . . And Many, Many Charts, Diagrams, Pictures, etc., etc.

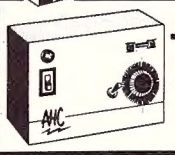
ONLY $1.00 Actually, it's FREE

INCLUDES FULL $1.00 REFUND COUPON FOR YOUR NEXT ORDER

HO BRASS RAIL 99 FEET
495' for $9.95 — $2.50

POWER PACK BARGAINS

FAMOUS "AHC"
SOLO-PACK
with pulse power
ONE TRAIN POWER PACK
$15.00 Value, for ONLY **8.95**



FAMOUS "AHC"
TRIO-PACK
FOR 2 OR 3 TRAINS
$25.00 Value, for ONLY **17.49**

save! "HO" SWITCHES $1.50 EACH

6 for $7.50
Completely assembled. 4, 6 or 8 RH or LH. All brass . . . made to N.M.R.A.'s rigid specifications. The smoothest operating switches you can buy. NO MINIMUM ORDER.

FAMOUS "AHC" FLEXIBLE "HO" TRACK

50¢ Per 3-foot Section

25 SECTIONS FOR $10.00
Accurately detailed — solid brass rail on heavy gauge fibre tie strip. Meets our own (and N.M.R.A.'s) specifications. NO MINIMUM ORDER!

LOOK! SAVE!
50' COILS • ASST'D. COLORS
Single 20 Gauge Solid, Plastic Covered

WIRE
6 COILS ——— $2.75
12 COILS ——— $5.25

24 HO FIGURES

You get 6 each of: train crew, station crew, passengers and passengers with luggage. Unpainted.
$1.50 VALUE **$1.15**

AAR BETTENDORF All Metal Sprung Freight TRUCKS

Reg. 90¢ **50¢** pr.

0-20 D. C. AMP METER

Panel mount 2¾" square with bracket. Reg. ~~$3.00~~ **2.00**

61-80 CARBON DRILL SET

HUOT CASE
Reg $6.50 **4.50**

AHC All-Gauge Track Plan Designer

REG. $1.50. **1.00**
Saves hours of labor. gives 16 curves, 4 crossing angles, double track spacings, etc.

HO FARM ANIMALS

WAS 70¢ **35¢**
Set of 6 (unpainted). Includes: sitting pig, standing pig, sheep, lamb, horse and cow.

MORE SUPER SPECIALS

DC POWER SOURCE . . . 4 amps, 12 volts in a build-it-yourself power kit. Here's a basic unit consisting of transformer, line cord, full wave constant duty selenium rectifier — color coded and labeled for hookup, 5 amp circuit breaker and holder, etc. An ideal power source for cab control.
REDUCED TO..... **$9.00**

ENGLISH NYLON TRUCKS

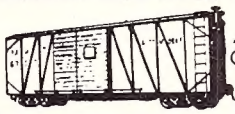
Reg. 50c **25¢** pr.

CORK ROADBED

Flexible . . . easily curved to match your track layout. Comes beveled for realism. **30¢** Per 3-foot Section

NO MINIMUM ORDER!

HO CAR KITS
COMPLETE WITH NYLON TRUCKS



Any Six Cars for $5.00 **98¢**

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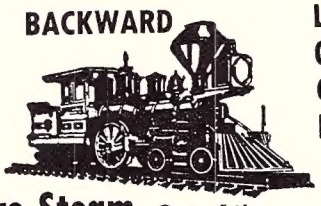

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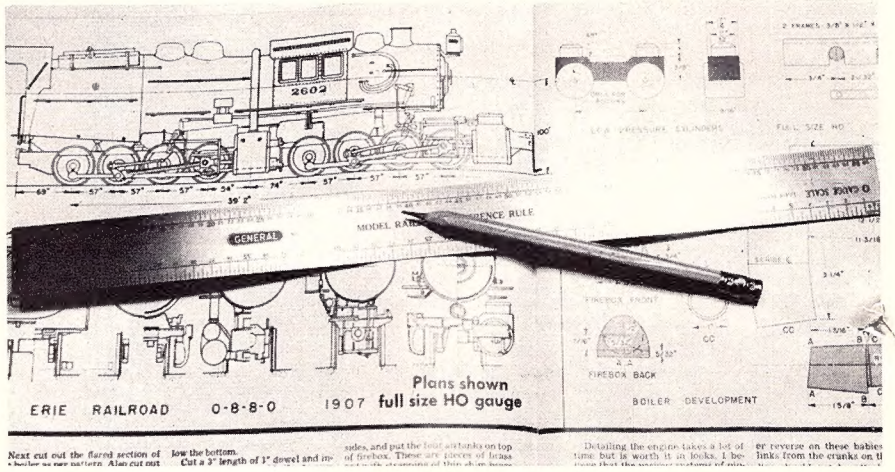
OFF THE TEST TRACK IN MODEL RAILROADING

Foot Long Scale Rule, HO & O



Why a foot long metal scale model railroad rule was never offered before is just one of those mysteries but the new 12" precision gauge rule just released by General Hardware was well worth waiting for.

Of stainless steel, etched gradations are marked off for both HO and O gauge dimensions. The HO rule stretches out to a massive 87 scale feet while the O gauge side measures 48 scale feet. Since most of the model magazines print the bulk of their plans in these two most popular sizes, transposing of dimensions from one scale to the other will now be simplified since there will be no need for sliding the rule along your work several times as was necessary with a 6" rule, of which there are several on the market. The length is especially practical for the HOers since few passenger cars exceed 85' in length.

The reverse side of the rule is loaded with handy reference tables including the decimal equivalents for fractional drils, decimal equivalents for number drills, tap drill sizes for small screws, formula for 75% depth of thread, 10 cm. rule calibrated in millimeters, and a 5" rule calibrated in 64ths of an inch.

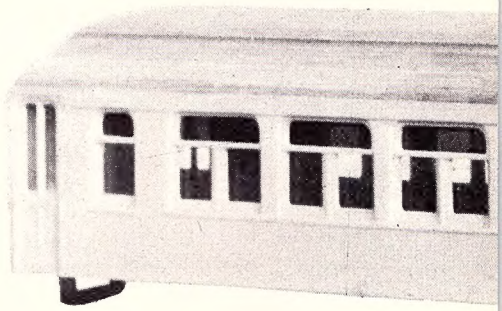
Manufactured by General Hardware Mfg. Co., 80 White St., New York 13, N. Y., manufacturers No. 1251 Model Railroad Rule, price $1.00. Available through dealers and jobbers, the company also manufactures a 6" rule.

OO Gauge Layout and Design

If the title causes American OO gaugers to flip their lids, our apologies, since this concerns the latest revised edition of the British book by Ernest F. Carter. Actually the little volume deals with problems of the British OO gauger who models to a 4mm. scale (identical to American OO) but on a 3.5mm. scale track gauge, identical to American HO. A few of the clearance problems, therefore, are unfamiliar to American operators.

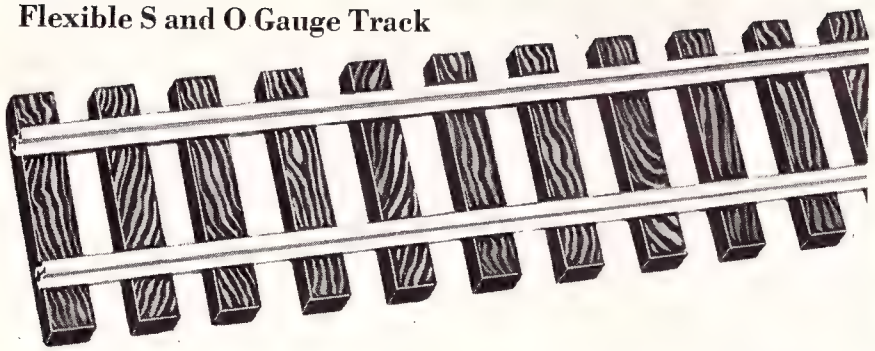
The book makes interesting reading and covers in a somewhat refreshing manner Space Considerations, Drawing up A Plan, Types of Layouts, Where to Put the Track, Passenger Station types and Design, Good Traffic, and Handling The Motive Power, plus other topics. There are many line drawings which are easily followed. Photographic illustrations are all of prototype British Railway scenes. They are interesting but the writer would have preferred seeing some good examples of British model building skill instead.

"OO Gauge Layout & Design," by Ernest F. Carter, is published and printed in Great Britain by Percival Marshall & Co., Ltd., 19-20 Noel St., London, W.1. Price 3'6., 102 pages, pocket size soft cover.



Manufacturers are invited to submit new and revised products to the Test Track, Railroad Model Craftsman, Ramsey, N. . for testing and review.

Flexible S and O Gauge Track



O gaugers using Gar Graves track will want to see the three rail 90° crossover and hand operated switches now offered by this maker. These items are manufactured in essentially the same manner as regular Gar Graves track, using a hollow T rail section with a double bottom web imbedded in scale sized black wooden ties. This track will match regular solid O gauge trackage.

Gar Graves has also entered the S gauge field with track that matches American Flyer track. Again, hollow T rails are imbedded in black wooden ties, for a realistic effect unmatched by ordinary tinplate track. The three foot lengths of track may be bent to any desired radius and can be straightened again later if desired. Gar Graves track is easily cut into shorter lengths with a razor saw. One interesting feature of this track is the fact that the ties, after some use, do not have that stamped-out-of-cardboard symmetrical appearance.

Switches for S gauge are also in preparation. The O gauge switches work well but do not come with a switch machine attached, so that it will be necessary for the modeler to add these himself. The switches look good and are well made, although we felt that the curvature of the turnout was a bit too sharp and could have been rounded off a bit more. Operation wise, they work perfectly, and are a welcome addition to the Gar Graves line of track products. Manufactured by the Train Doctor, 2261 Dewey Avenue, Rochester 16, N. Y., prices and information on request.

HO Passenger & Interurban Cars

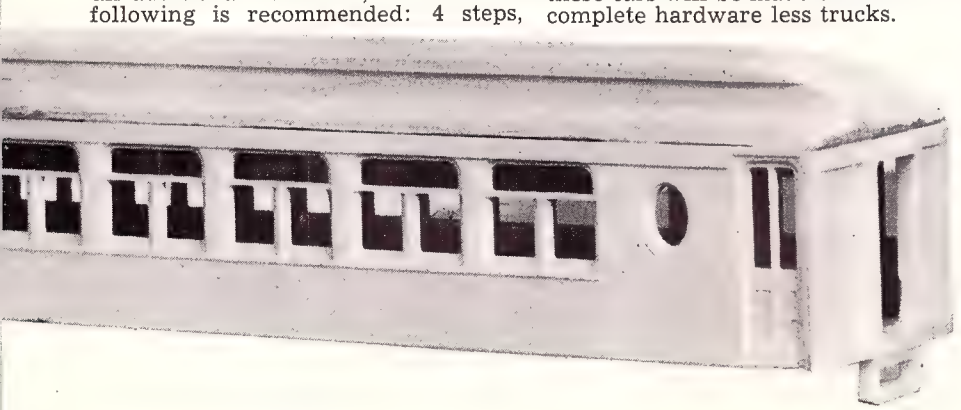
Trolley magnate Dick Wagner is now offering the old ICC passenger car kits for HOers, a line that has not been readily available for some time Three different kits are available: a 45′ wood interurban, a 50′ wood interurban, and a 60′ wooden railroad coach. Constructional features of all three body kits are similar.

The sides and ends of these cars are molded in an orange plastic, not unlike "traction orange." Scribing and window detail on the sides is very clean and neat. The ends of the railroad coach are windowless but do contain a headlight molded into the door opening for those who might care to convert the car into an MU. The plastic ends could have windows cut into them without much diffifficulty.

All three kits contain the plastic sides and ends, finely milled roof and floor section, green acetate for the upper sash windows, and clear window acetate. An instruction sheet is also furnished. The builder must purchase all additional hardware, of which the following is recommended: 4 steps, truss rods and queen posts, couplers, 4 or 6 wheel trucks for coach or power truck and trailer for interurban (plus poles, fenders), couplers, and stove pipe. Some wooden cars were later equipped with steel underframes so that the builder could eliminate the truss rods although we feel this is one of the real features of this type of car.

Before painting the sides, we'd recommend that the builder try his paint on the inside of the car to see if there is any reaction on the plastic. If there is, some other brand of paint will have to be used or the entire car will take on an unwanted wrinkle finish. Care should also be taken to avoid excessive use of cement since it can damage or warp the sides of the car.

The two interurban kits, typical of the midwestern cars of the early 1900s, came with rounded ends and narrow traction width roof and floor. Available from Wagner Car Co., 59 Euclid Ave., Cincinnatti 15, Ohio, price $1.95. We hope that some time in the future these cars will be made available with complete hardware less trucks.



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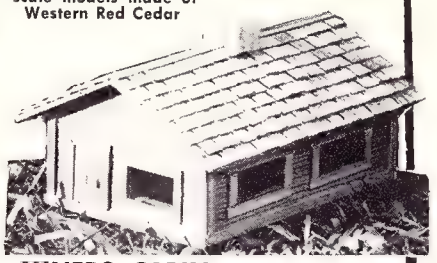

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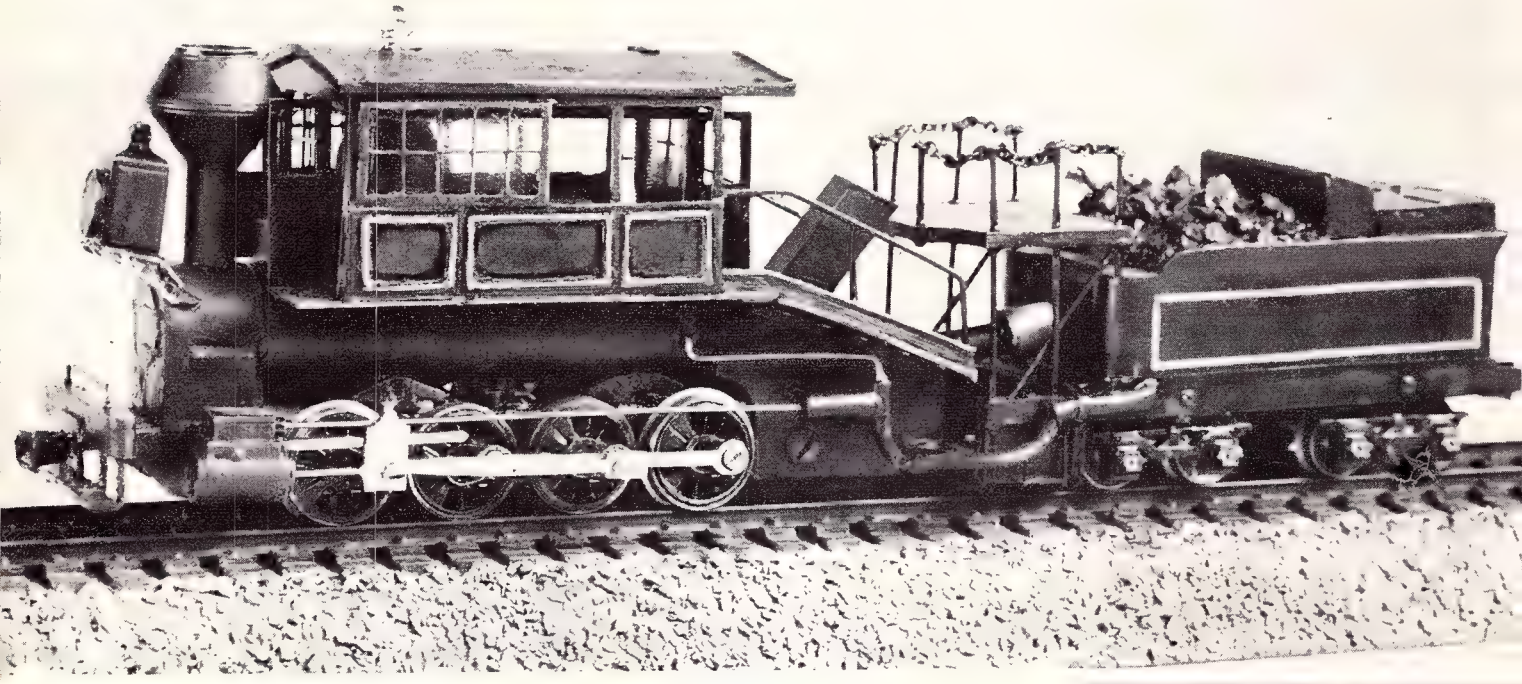
Picture this old cinder pot flying down your main line with a drag of old time wooden hoppers and you'll know there's a train a'coming. Author's model uses many commercial fittings.

photo by Skean



WINANS in HO

Over 200 locomotives of this general design were built about 100 years ago, creating quite a stir at the time. Successful in design they continued in use for over 50 years, making them suitable for many model pikes. This engine makes an ideal freight engine because it packs plenty of power.

See page 67 for plans.

THE Ross Winans camels, all 0-8-0 type, were built in the city of Baltimore starting in 1848. Over 200 were made, of which over 100 were for the Baltimore and Ohio. They continued in use for almost half a century going through numerous rebuildings so that it can be said that almost anything goes on a model of a Winans camel. The original engines had open cabs, and a tricky cinder-trap stack, while later versions had more or less enclosed cabs and more conventional stacks. Fireboxes were of various lengths and heights, but all slung behind the drivers. Some were fired from the rear only, others from the rear *and* from overhead chutes in the sloping top. Judging from pictures, this overhead firing system which necessitated the double deck tender was supplanted by the single low deck tender and rear firing only. Fuel was always coal. Strangely enough the Ross Winans" camel which is now in the B. & O.'s historical collection while bearing a superficial resemblance to the Winans camel described here is actually a 4-6-0 type and is a Hayes camel of somewhat later vintage. Ross Winans himself swore *by* the 0-8-0 type and *at* the 4-6-0 type!

It should be made very clear here that the plans presented with this article are of a Winans camel as I built it in HO gauge with changes necessitated by the light use of commercial parts. It is at least a reasonable facsimile of the real thing, and if you can find better plans more power to you. These were really faked up from a combination of what had to be, the Winans patent drawings, and a few rather small photographs.

Special Parts

There are a few parts which you will have to have made for you unless you have access to a machine shop and know how to use it. These are the frame, the boiler, the stack, and the dome. Actually you can make the frame at home using the methods I described for the "Elizabeth Pansy Perkins" in the Sept. 1953 RMC. The boiler could be wrapped up out of sheet brass, the dome cast of low melting point alloy, and the stack made from tubing and sheet brass. But it hardly seems worthwhile. I get such machine work done by a sometime advertiser in RMC, Bob Grosvenor, Box 27, Piqua, Ohio and find both his work and his prices quite satisfactory. The four parts listed (including rods and retainer plate) came to under ten dollars, although the exact amount of change you would get would depend on how much work you had done on the frame. I had only the axle holes reamed and the rods made and suggest that you do the same since the notches and other holes are of the type that are best spotted and made as you go along. Just tell Bob exactly what you want, referring to this issue of RMC, and he will give you an exact estimate. For another

Ross Winans engines varied greatly in appearance through the years, being constantly improved and modernized. Sand pipes and rear light were omitted from model, springs made smaller.

photo from E. P. Alexander Collection

CAMEL

by Bill Schopp

machinist (maybe yourself) use the plans in the magazines to work from.

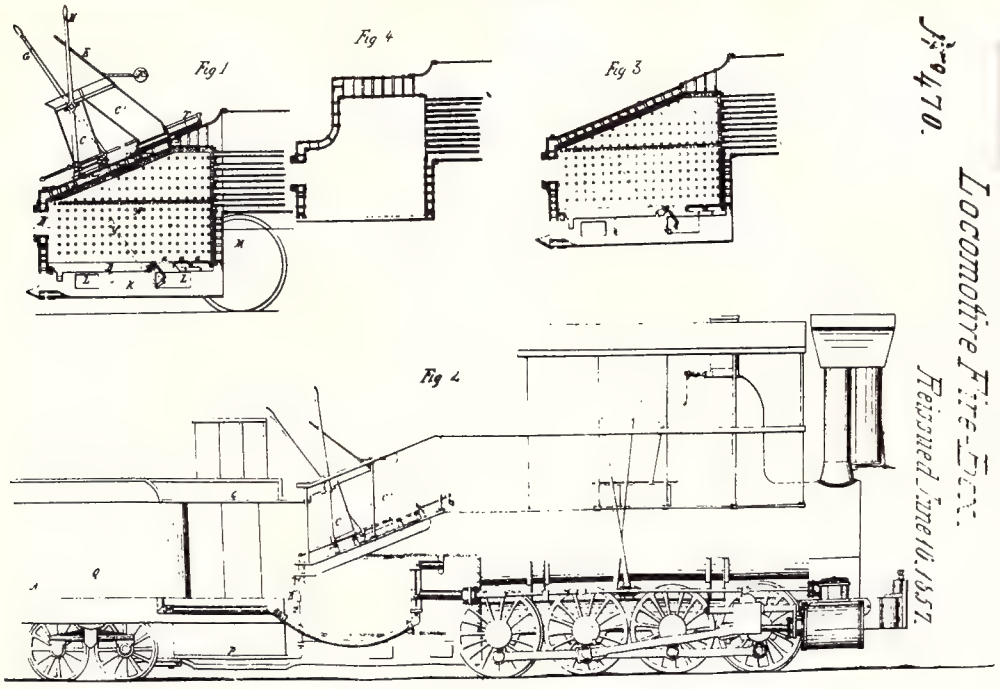
The $^{3}/_{16}$" holes in the frame, later opened out into slots with a jewelers' saw, are for Mantua bearings, but if you wish to omit these, use $^{1}/_{8}$" holes which will take the axles in question, but then a .092" or thicker walled channel should be used to give more bearing surface. The slot to clear the worm in the boiler may have a round top if that would be easier for you or your machinist, and may extend a little farther front if that is necessary by the type of cutter used. The stack and cylinder mounting holes in the boiler, while theoretically in a straight line should be drilled halfway in from each side and tapped. Otherwise the No. 50 drill you use (to later tap 2-56) will wander enough in the little more than ½" to make the boiler sit at an angle. When the slope is cut off the rear of the boiler (firebox rather) the overall length will really be somewhat less than as made, but since this part will be covered, it doesn't matter.

Commercial Parts

What commercial parts can be used? Brass Betsy drivers for one thing, which you can *also* get from Kemtron, specifying *with* worm and gear, but without eccentric. These are very close to 43" drivers which the Winans camels had. You can also use one or two Kemtron M-7 headlights and four engine springs. Mantua is another big help, furnishing the "General" tender complete, plus bearings and worm-mounts from the same kit. I used "General" cylinders but had to do a lot of work on them as will be mentioned shortly.

A lot of parts must be made up by you as you go along, the tender decks and tank, the water pumps, the pilot beam, headlight bracket, and biggest of all, the cab. But while waiting for the engine parts I started working on the tender. First of all I jewelers' sawed $^{1}/_{16}$" from each side of the tender frame, then attached new longer side-beams with a pair of 00-90 screws each. Then I formed the low level firing deck of the tender from .015" shim brass, soldering it inside square U shaped brackets suspended from the new extended side beams. This has sides, bottom, and back, but no front so the low slung fire boy could reach the fire door. Above this I set up the posts supporting the upper firing deck (or roof as the case may be). To aid in assembly the rearmost posts should be thrust into holes in the front of the water-legs of the tender body, but then should be sawed off close since the firing decks must stay with the frame whenever the tender shell is removed. The tender shell itself must have its entire top cut out. After the motor position has been established you will have to build a higher tank for the tender, plus a tool box, for the rear of the motor must be blocked up in the air in order to get the shaft to slope down enough to give a good flexible drive to the worm shaft on the engine (which is lower than on the "General" because of the smaller drivers). The front of the motor is concealed by coal which is cemented to a fibre form which arches over the opening. It is a good idea to leave a bar of the original casting across the front of the tender for strength and rigidity.

Drill a hole in the sidebeam, of the tender on the left side where the water line comes out, then up into the inside of the tender. Run a piece of spaghetti with the pick-up wire inside it through this spaghetti. Strap spaghetti to side of beam to keep it flat. Where wire leaves spaghetti use its original Pittman insulation and where it will slip into the water pump, solder a piece of tubing on that will slide nicely into the water pump like a jack. This makes the electrical connection between engine and tender. On the other side you can approximate this but of course



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the back end will not be attached to anything, or, if a working headlight is desired, will be grounded to the tender frame. More on this later.

An approximation of the original trucks may be had by sawing the bottom bar from the "General" tender trucks. The original solid wheels *may* be replaced with Kemtron's 8-spoked wheels, but since they are larger, considerable butchering of the bolster will be necessary in order to clear.

The Locomotive

Next comes the locomotive. Insert Mantua bearings in the slots in the frame, then insert wheels in the bearings. It may be necessary to file out the bearings a little and to polish the axles with fine emery cloth. Then check the fit of the retaining plate and drill it No. 42 at three places about as shown for 2-56 retainer plate screws, which should have flat heads and be countersunk into the under surface. Drill top of frame at corresponding place No. 50 and tap 2-56 to hold these same screws. When screws are inserted, cut off flush with top of frame. At this point you *must* have all wheels able to spin freely with retainer tightly in place. Excessive play of axles in bearings will result in poor running. Insulated wheels will be on the left side.

Drill four No. 56 holes on top of the frame and tap out 0-80 for the screws which hold the "General" worm mounts. Be careful since the holes come down close to the inside of the frame and may be a cause of broken drills or taps. Mount your worm on a piece of .092 drill rod (mine was the shaft from a burned out armature), and space with pieces of tubing to keep its location in relation to the worm mounts and the gear. If the depthing of the worm into the gear is not right it may be adjusted by carefully filing the bottom of the mounts (to lower it) or by inserting thin shims of brass to raise it. You can check freedom of worm and gear at this point by running a piece of model airplane gasline tubing from wormshaft to the motor or any motor, then slowing down as much as possible.

Remove worm and install side rods which come to you not shaped but drilled. Needless to say these should be free, not bound up by the heads of the side-rod screws. If they tend to bind, the outside of the rods may be slightly countersunk with a drill a little larger than the screw head. In theory the eight coupled wheels (with rods, that is) should now roll freely, but in practice this seldom works out. When you elongate any side rod holes with a mouse-tail file, be sure that you do *not* touch the ones on the geared set of drivers, in this case the third set. Once you have drivers free, with rods, remount the worm, and try them with power. A little running in, with lubrication, will often make minor snags work out.

The "General" cylinders, as they come, are spaced for a location where the crosshead would never interfere with the front drivers, i.e. on a 4-4-0. Hence they must be separated and attached to a short length of brass channel with two 00-90 optical screws on each side, reinforced with solder and Sal-Met flux besides. Before you cut up the cylinders, however, drill out the piston and valve holes. Drill them all the way through the cylinders I say, especially the valve holes since it makes later work much easier. You'll also have to drill new holes at the top of each cylinder into which you will force the 3/64" square crosshead guides—ends can be rounded somewhat with a file. The new cylinder block is set down in a notch in the frame so that the pistons are level with the line of the driving axles. Then solder in place and drill the No. 42 mounting hole indicated on the frame diagram.

I made up the crossheads from 1/16" thick brass as follows, actually making the pair at the same time so I wouldn't end up with two rights or two lefts. Take all measurements from your cylinders, guides, rods, etc. First, drill No. 60 and tap a 00-90 hole in the center of the top edge of each to hold the set-screw which actuates the valve and pump rod. Second, drill across each for an easy fit for the valve rod, which will doubtless be a straight length of brass or steel rod. Third drill in the sides a press fit for your piston rods, checking spacing of valve-to-piston carefully with your cylinders. Fourth, file a slot to fit over the cross-head guide. Fifth drill for shouldered screw which will attach mainrod to crosshead. Sixth mill out a recess to let the main rod set inside the crosshead. Seventh, cut away excess metal at top. Insert piston rods in holes provided and centerpunch lightly over the hole on the back of each crosshead to retain rods. Above all avoid soldering around a crosshead if you can because they take a terrific beating and solder will eventually crack up under the strain. Shape main rods and attach to crossheads and when they are in place to the main crankpins. Of course there will be spacers of tubing between main and side rods on each main crank-pin to prevent the screw on the second set of drivers from fouling the main rod.

At this point you should be able to test run your engine, rigging up a temporary drawbar between engine and tender. Of course the General flexible drive will be too short, so remove it from its end-pieces and replace with a piece of rubber catheter which you can obtain at a drug store. If the flexible shaft tends to whip at high speeds, insert a piece of small dowel (wood better than metal since it is an insulator) inside the rubber tubing, allowing about 1/8" of free tubing between end of wood and end-piece of flexing.

The pilot beam may now be soldered on together with its grab-iron, coupler pocket, and switching pilot. It is not quite clear whether these engines originally had any pilot, but later photos show them with what looks like a switching pilot but admittedly may be simply a bar across to catch rocks on the track. Later some of them sported real cowcatchers. I would suggest adding the springs after the superstructure has been completed, but I'll tell you right now that you must do a lot of cutting

down on the Kemtron springs, must file the inside top surfaces at an angle to let the boiler sit low enough. Although I at first soldered my springs in place, it was an awkward job and not satisfactory, so after they broke off a few times I affixed them with Goo. The rear springs must be cut out to fit over the rear worm mounts.

Boiler & Cab

You could go ahead with the boiler at this time, but I'd suggest making the cab first because some of the boiler work depends on it. Besides the cab is a titanic job and once you have finished it you feel the camel is about done. The cab sides are made up of layers as noted in the Scheme of Cab drawing. You must mark out the various parts on flat brass, .015" shim brass being what I used. Then you must cut out where necessary with a jewelers saw. Beading is soldered around the edge of the openings in the outer layer. Behind this goes the inner later which includes posts. Then come the 1/16" square channels (Special Shapes has 'em) in which slide the side cab windows. I went to work and actually jewelers' sawed out all the window lights, but think that almost as good a job (and certainly a neater one) could be done by drawing the lights on a piece of clear plastic and inserting it to run in the tracks. There should be two ten light sashes on each side, but all the photos I have ever seen of the engines at work show them shoved up front, so economized by making only one.

On the cab ends, I had the doors standing open since all photos of the engines at work show them that way. It must have been mighty hot on top of that boiler so that a draft would be welcome. Having the doors open (soldered in place) lets you forget the lower panel in each.

The two cab sides and the two ends should have their edges beveled at 45° and they are then soldered together from the inside. Next the sand-boxes are bent up and soldered to each end. For sand-boxes and cab ends do not worry about the curve of the top of the boiler, just go straight across. The cab floors should be soldered in next. These extend out the front as short running boards and out the back as stairways. The steps had me baffled for a while until I conceived the idea of cutting them out about as shown on the diagram (a small hole in each to start the jewelers' saw blade is now shown). The slight inward cut on the top of each step gives a good starting place for an outward bend of the step. Make these bends now but do not affix the sides to the steps as yet. However these will have wire beading soldered on top and bottom as shown. The railing will be soldered inside. The exact slope of the firebox will later determine the slope of these parts so wait a while.

The cab roof is a separate part, bent up from scribed 1/32" brass with wire beading around the edges. There is a heavier wire soffit around the underside to fit nicely inside the four walls of the cab. The top will be drilled and the upper part of the steam dome soldered in it. Later a weight will be screwed in under the roof where it won't show. I used some 1/8" brass for the weight. I also cast little lead weights in wooden molds and affixed with countersunk 2-56 flat head screws under the cab windows. The consequence is that this little loco, with the various cab weights, the heavy frame, and the solid boiler has an unbelievable amount of weight and hence good traction.

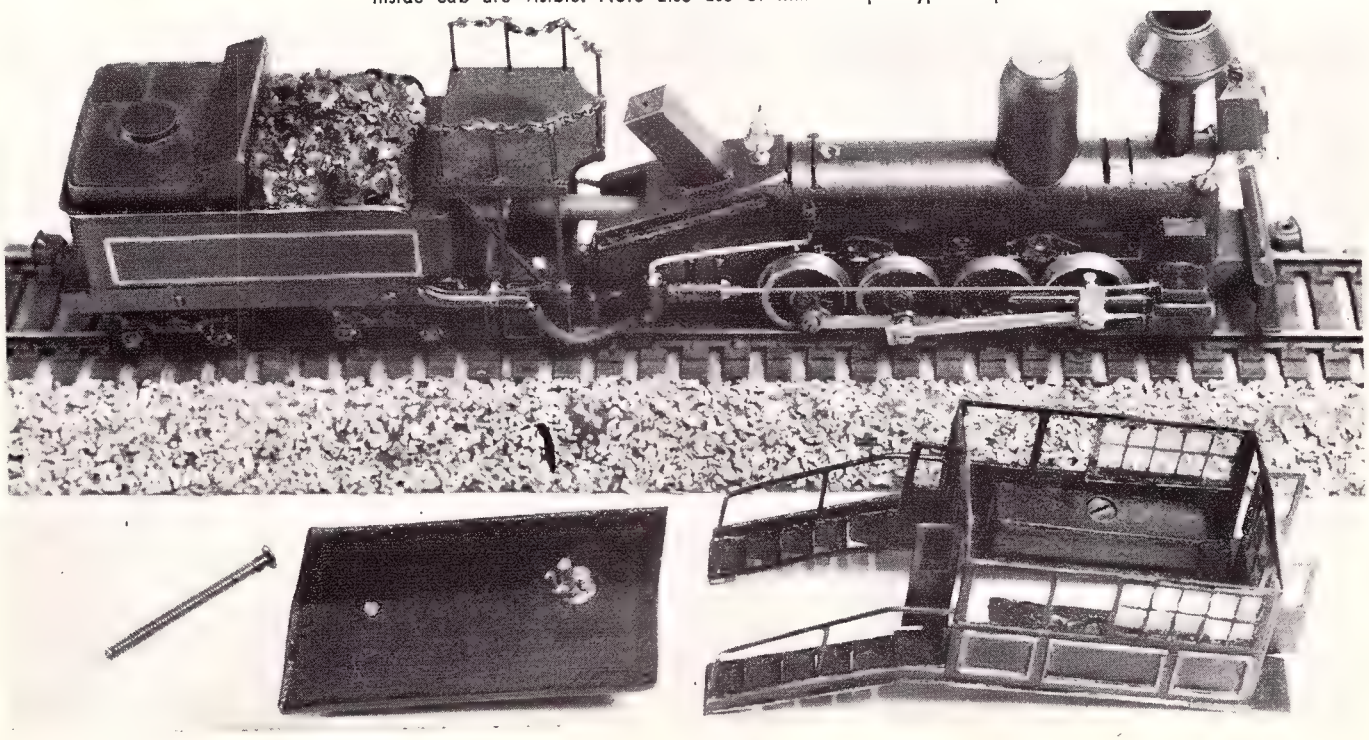
The cab roof as well as the cab are demountable. They are held in place by a long 2-56 screw extending down through the cab roof (not shown on plan) into the top of the boiler. There should be a spacer of tubing on this screw so that you cannot tighten it too far and mash the cab roof or sides out of shape.

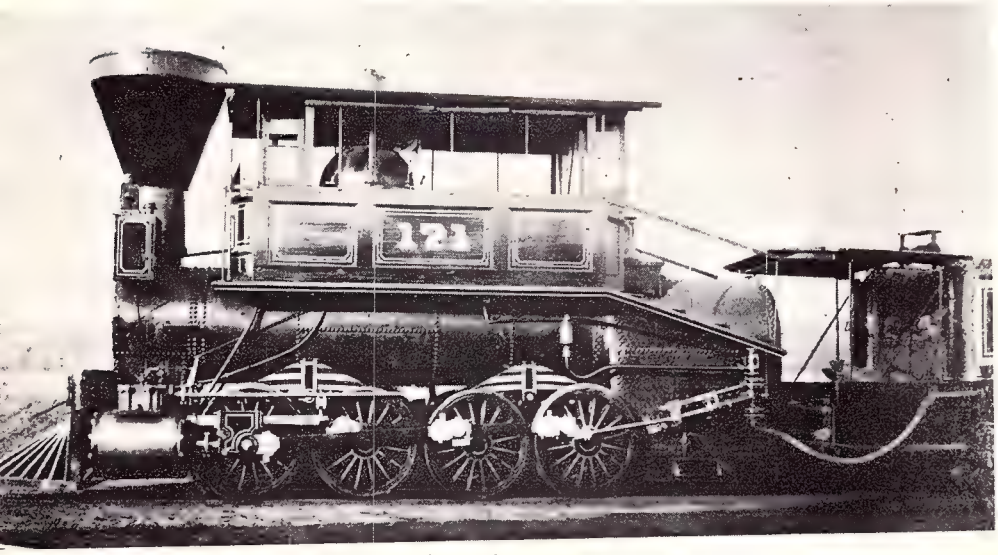
The boiler should sit down on the channel brass cylinder saddle and run back about level, also resting on the worm mounts. Bend up a firebox pattern from .015" shim brass and shape the top corners to fit in over the curve of the back of the boiler. If it is too stiff to curve easily, heat it over a flame. The front lower corners of the firebox should also be cut to fit around the driving wheels. They are supposed to slip behind the drives and will, but I did not want the insulated drivers' tires to short out on the firebox. Solder firebox in place on the boiler inside, then add the sloping top of the firebox. Cut out, if you have not already done so, to clear the shaft from the tender drive. Drill two No. 42 holes through the firebox sides, and then No. 50 tapped 2-56, into the sides of the rear extension of the frame. This provides the rear mounting for the boiler. The front is as usual up through the cylinders.

A piece of .015" shim brass is softened in a flame and then bent around the recessed front of the boiler to form the smoke-box. It is soldered to the boiler at its back end and un-

Exploded view of camel shows how cab and roof can be demounted for repairs and shipping. Tender is easily uncoupled from engine. Weights inside cab are visible. Note also use of link and pin type couplers.

photo by Skean





After much rebuilding, B&O Eng. 171 boasted a pilot, round topped firebox, and an odd side-saddle headlight. Note fancy paint on springs.

B&O RR photo

WINANS CAMEL in HO

This is the engine "Ross Winans" in the B&O collection, but it is actually a later "Hayes" type ten-wheeler. Detail applies to both types.

photo by Schopp

derneath, then the solder is filed smooth. A smokebox front is soldered to the smokebox, then a clean-out door to it, plus two hinges. A headlight bracket, drilled ¼" in the center to clear the bottom of the Kemtron M-7 headlight casting is cut from thin brass and attached with 0-80 screws into the smokebox. The headlight casting itself is soldered to the bracket.

To keep the cab level, four cuts are made with a saw across the top of the boiler, two for the cab ends, two for the sand-box ends. The depth of these will determine how low the cab sits. Attach cab and roof to boiler with screw as mentioned before, then adjust stairways at rear to about right slope and complete them. To furnish added support to these stairways which would otherwise jut out dangerously and be subject to damage, solder pieces of 1/16" x 1/16" brass angle (Special Shapes again) to the sides of the firebox to support the stairways at the correct angle, parallel to the top of the firebox.

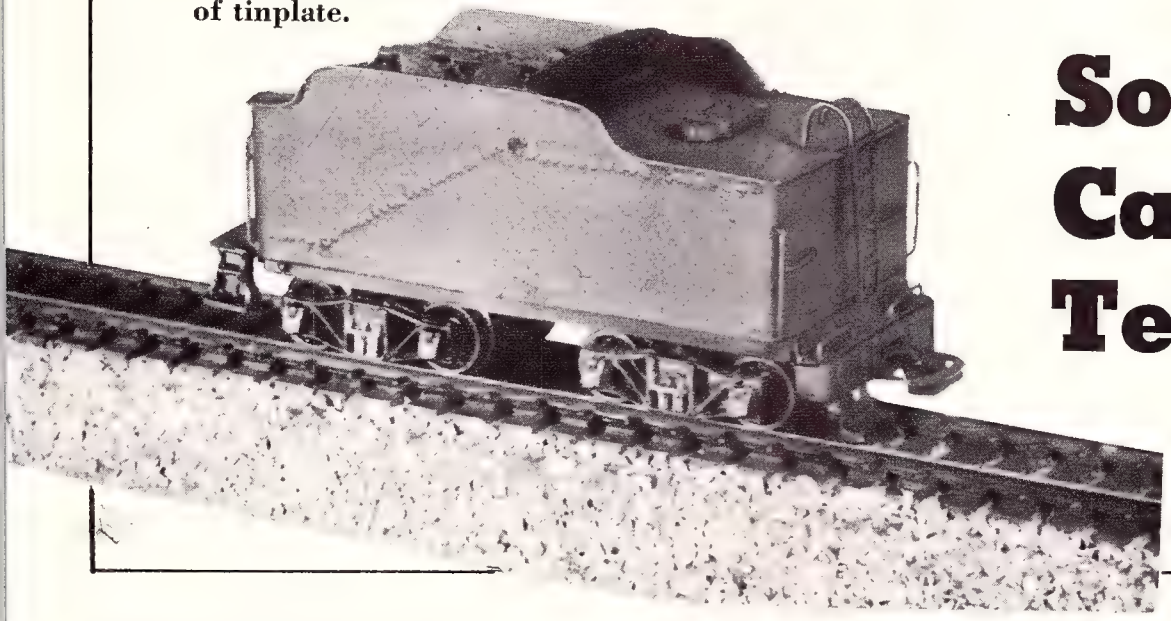
I had room for only one top firing coal chute because of the cut-out to clear the flexible shaft. I added a bell just back of the rear sandbox, altho none of the photos I have indicates that one was there (but it is on the Hayes camel). Screw stack and dome in place if not already done. I did not include sandpipes, but if you want them they should be attached to the boiler only and should preferably *not* come down over the drivers, at least on the insulated side. I omitted the levers extending from the frame up into the cab, but did affix the steps from cab down to pilot beam.

The water pumps are mounted out far enough to line up with the valve rod. I drilled through the sides of the firebox and extended two pieces of stiff brass wire all the way through, notching out the frame to clear them. I then drilled across two pieces of 3/32" brass tubing for these wires, soldered them in place, then redrilled the tubing (which is much larger than it needs to be to be sure of free action of the pump. Then I notched another piece of brass tubing, heated it to anneal, then bent it back at about a 45° angle, and soldered it to the back of the other tubing. From the top of each pump a wire runs up to a boiler check valve mounted just under the cab.

LIST OF COMMERCIAL PARTS

Mantua Metal Products Co., Woodbury Hgts., N.J. or your dealer:		
2 pillow block assemblies at 50c.	13428	$1.00
3 long axle bearings at 15c.	6301	.45
2 short axle bearings at 15c.	6302	.30
4 screws 0-80 x 3/16" Round Head	7178	.20
1 cylinder block	2657	2.00
1 tender body	2210	2.00
1 tender frame	3220	2.75
1 motor PM-1B special	33565	7.00
1 pr. tender trucks	24725	2.50
3 screws 2-56 x 1/8" round head	7277	.06
1 screw 2-56 x 3/16" round head	7278	.02
4 screws 2-56 x 3/16" fill. head	7303	.08
1 flexible coupling assembly	18596	.75
Cliff Line, 7301 Atoll Avenue, North Hollywood, Calif.		
3-44" drivers, plain, at $1.65	TH-24	4.95
1-44" drivers, with gear	TH-22	2.95
(specify geared driver an done ungeared driver to be without flanges)		
1 — worm only	????	.55
Warren Locomotive Works, 587 Kenmore Ave. S.E., Warren, O. or your dealer		
1 rope operated bell	#101	.50
1 pop valve	104	.20
1 whistle	106	.30
Kemtron Products Co., 750 Fulton St., Fresno Calif., or your dealer		
1 or 2 headlights	M-7	ea. 1.00
Couplers, 6 short, 2 long crank-pins any make, shim brass, small machine screws, hook-up wire, Lewis small brass tubing, etc. etc.		

Sharpen up your model building know-how with this chunky little coal tender of tinplate.



Soup Can Tender

by John Kemp

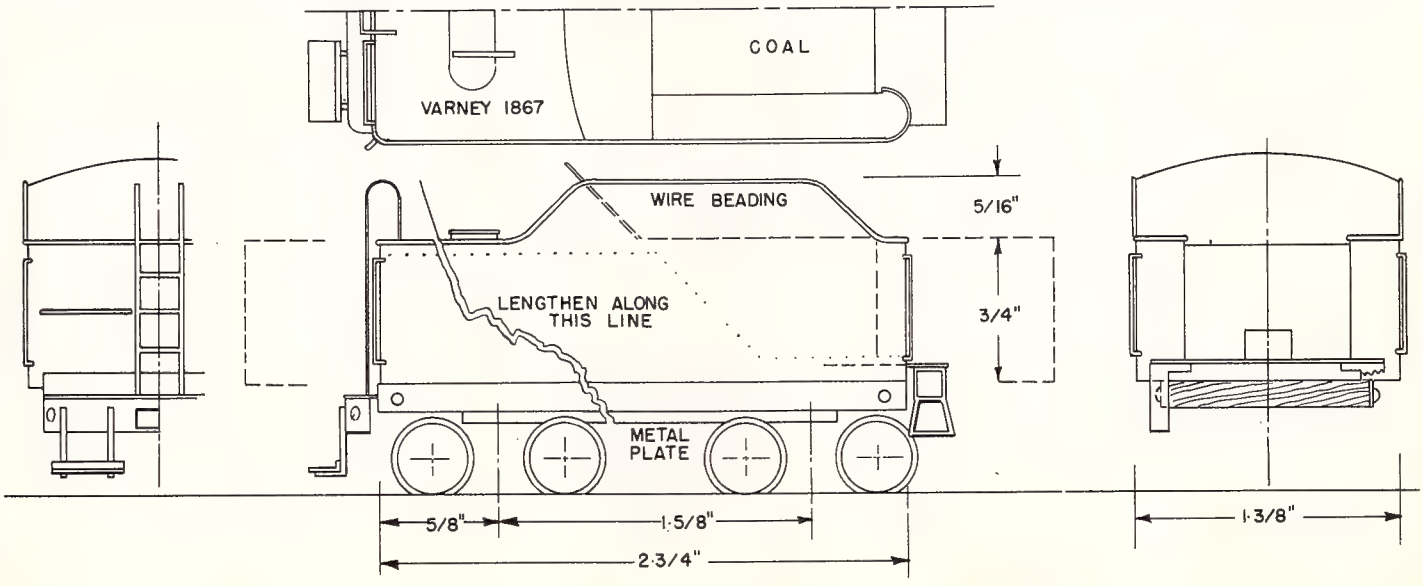
RECENTLY when in need for a small coal tender for a newly completed small, but fairly modern locomotive, I decided to build it from the ox-tail soup can, which had served as my lunch. I'd used this material during the dark war years and felt that it would serve again and save me a trip to town for brass sheet.

The can was washed and cut apart, removing all beading which is unworkable. A scriber was then used to mark out the tender outline. The tender is freelance so that you may adjust dimensions to suit your own conditions. The two sides may be laid out on the tin bottom to bottom or top to top so that they are uniform. Notice that the complete sides include one half the back and also a portion of the inside wall of the water leg. Bend the parts as indicated and solder the half backs, edge to edge, reinforcing with a piece of tin on the inside. Rivets, if added, must be punched prior to any assembly. I used an automatic center punch to get an even impression. Many builders may prefer to omit them.

Next bend a square U of tin ¾" high and long enough to complete the coal compartment by soldering to the bent back sides of the water compartment. Then make the entire top of the tender. Fit the back and have the front wide and long enough. Roof over the entire coal compartment with this top, tack soldering it in a couple of places. The rear part of the top is soldered to the inside of the top of the sides. Now use a fine jewelers saw to cut away the metal covering the coal compartment. Finish with a file.

Solder ⅛" x ⅛" angle along the bottom of each side, such as found in metal Suydam kits, or also available from Special Shapes. The tender floor is of wood held in place with pins in the ends of the angle.

Beading on the tender is stretched No. 24 copper wire soldered as shown. Don't apply too much solder. Cut out a tender deck and solder in place to suit the engine being used. Tender steps can be cemented, soldered or screwed in place. Add also a coal board in front of tender, and a back board at rear of coal compartment. Use a Varney water hatch or make your own. A switching pilot could be added to the rear of the tender, salvaged perhaps from an old loco frame, or purchased new from Varney, Mantua, or Penn Line. Affix a piece of ⅛" x ⅛" angle to the top with solder or optical screws so that the top of the coupler opening comes at the bottom of the wooden floor. Ladders and grabirons are added next. Marker lights and back up light are optional. Attach trucks to 1/16" bras plate on underside of tender. Trucks must have metal wheels, axles, frames and bolsters. Lead wire from locomotive is soldered to front of this piece. Add couplers, paint, and decals, plus coal and other details as may suit your fancy.



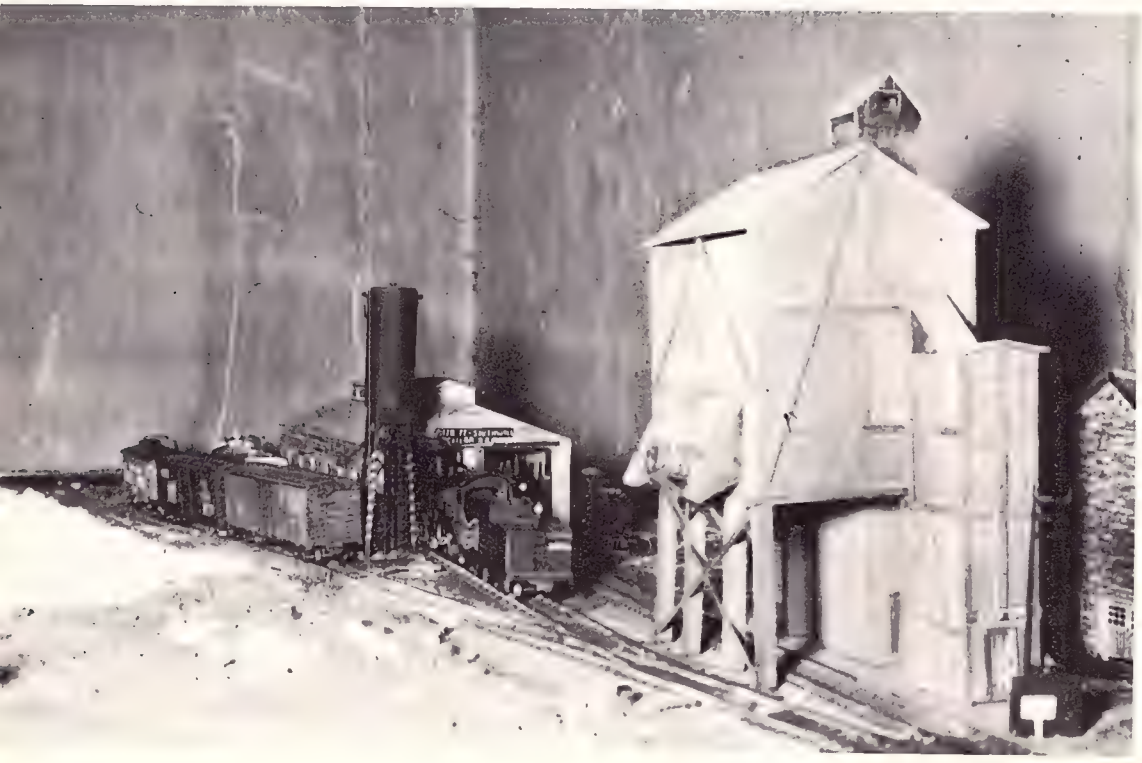
A real rarity in model railroading, this abandoned tunnel actually was once used by the SF-SC. Sharp curves and bigger engines made it necessary to relocate bore. Note contrast in the two tunnel portals.

Atlantic type Eng. 3482 rounds the curve after emerging from fruit cellar. Line thru fruit cellar caused some difficulties with local ICC Rugged scenery adds depth and scope to the miniature layout.

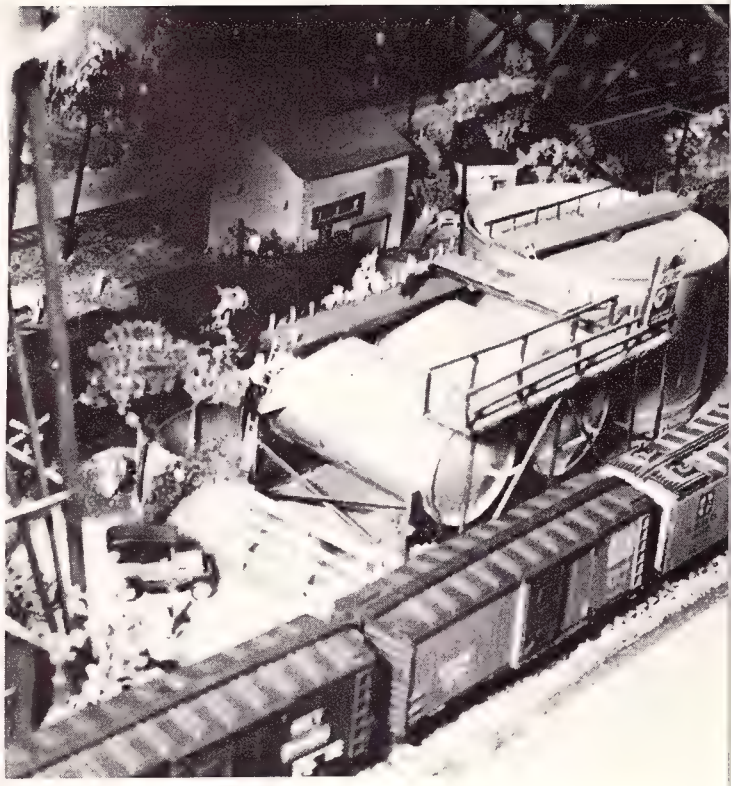
along the SF-SC HO Pike of Greg Williams

Simplicity marks the small but complete engine terminal on the SF-SC. Actually a yard is now being installed in the area to the left and additional engine terminal facilities have been added.

Wonder if the Santa Fe knows about this? This old reefer is plenty warm thanks to thick insulation during those cold Michigan winters. Addition of the stove and several windows makes it quite habitable.



photos by Greg Williams



SOME interesting scenic devices on the Santa Fe—Southwall Cellar Railroad prove once again that it is the feller with a little ingenuity who is going to build the pike that attracts attention. The Santa Fe—Southwall Cellar is the HO pike of Greg Williams, Royal Oak, Michigan, and started out as a point to point line in a relatively restricted space. Once this stretch was in, the need for expansion became apparent and the easiest thing to do was tunnel through the fruit cellar, an act which at first caused some opposition from the local ICC. Apparently the railroad was the victor, however, and from that point on expansion proceeded normally.

Scenery on the SF-SC is in part mountainous and in part quite flat, giving the road an overall appearance of larger size and spaciousness. Tunnels cut through the hills and in one spot there can still be seen part of an old right of way, apparently long since abandoned in favor of a newer line nearby. The old tunnel had to be given up because of too tight a radius curve and the need to extend the line further.

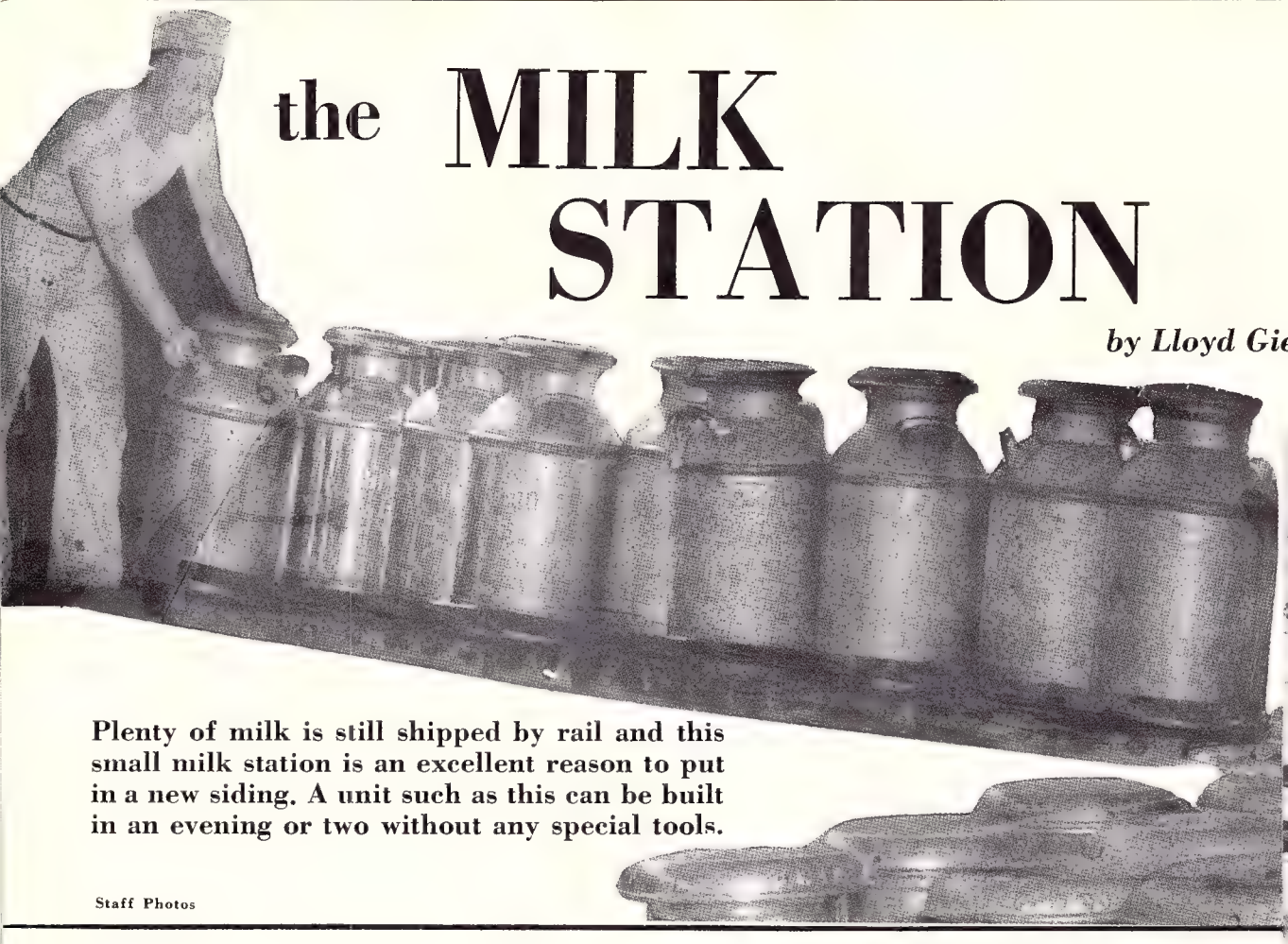
Industry and right of way structures abound on the layout and one truss bridge is an odd combination railroad and highway structure. Work on the engine terminal and yard has progressed much further than shown in the photos and all locomotives and cabooses now carry the road name SF-SC. The railroad also has a charter giving its route. Meanwhile, lots of new industry has created the need for more motive power and now the line is looking for a new pacific to care for increased frt. revenue.

The line's traffic department has been successful in adding an ever increasing number of revenue producing industries, such as this bulk oil depot. Railroad lobby has kept highways in poor condition.

Miller's Dry Gulch is crossed by three railroad bridges, one of which is odd combination rail-highway truss design. Two outer tracks are on main line; center track is on industrial freight only spur.

the MILK STATION

by Lloyd Giebner



Plenty of milk is still shipped by rail and this small milk station is an excellent reason to put in a new siding. A unit such as this can be built in an evening or two without any special tools.

Staff Photos

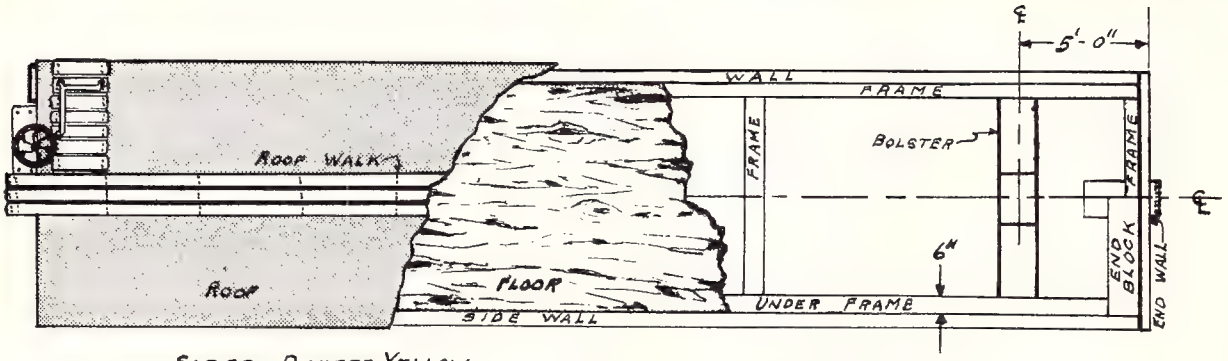
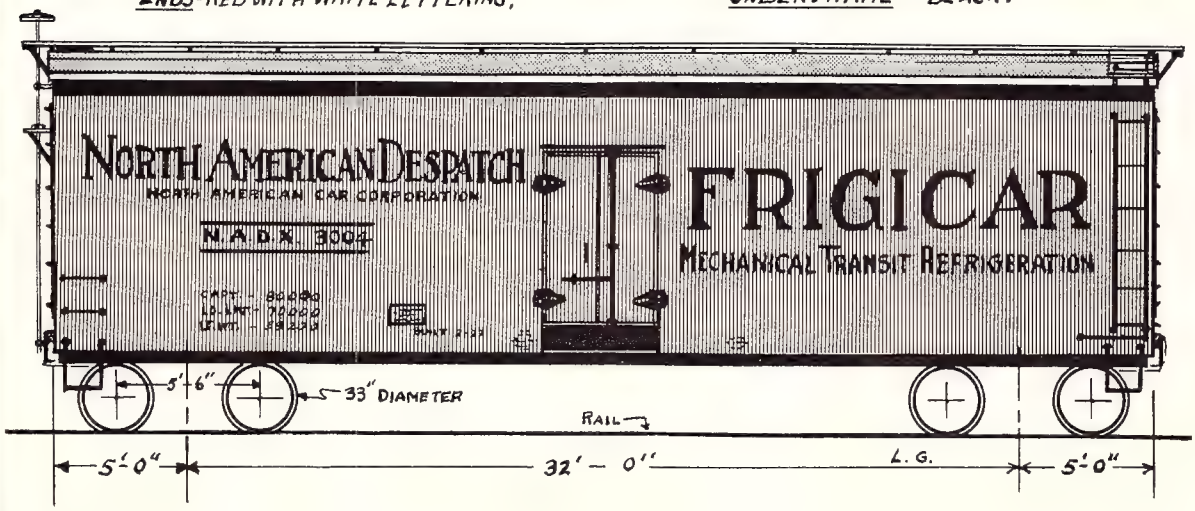
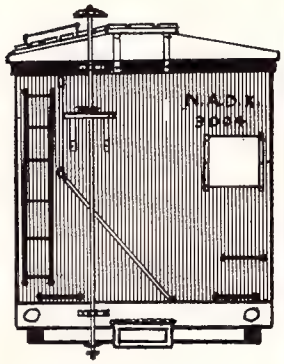


fig. 5

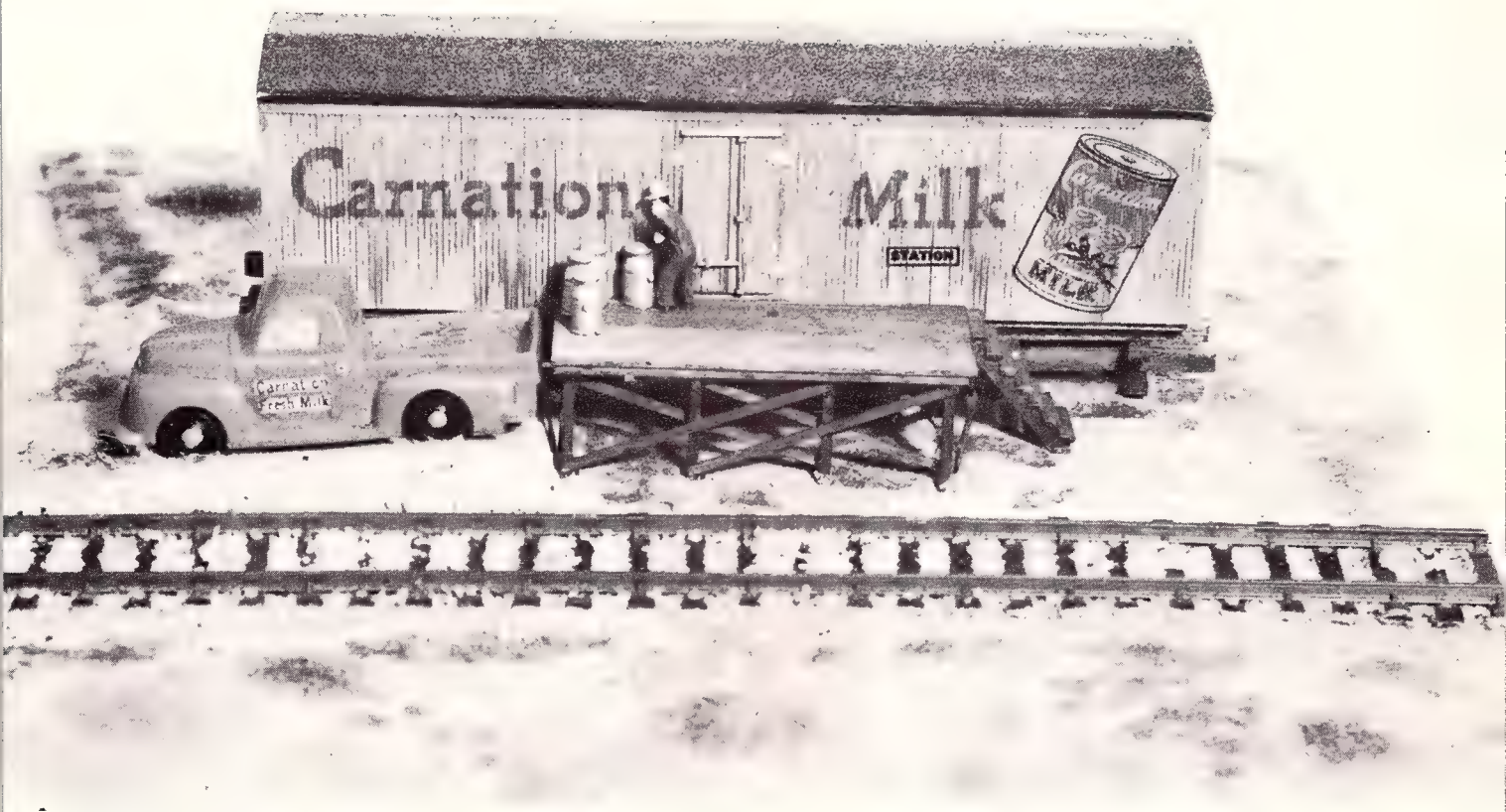
SIDES - REEFER YELLOW WITH BLACK LETTERING;
ENDS - RED WITH WHITE LETTERING;

ROOF - BOX-CAR RED;
UNDERFRAME - BLACK.





FULL SIZE FOR HO GAUGE
SCALE: 3.5 MM. = 1'-0"



IN an expression of words this article concerns the milk industry and has much to do with the daily routine of the dairy farmer.

About thirty or more years ago and especially long before the superduper highways and the speedy high powered refrigerator trucks came into existence, the dairy products and milk industry depended solely on the railroads for transportation from the dairy farms to the processor, distributor and consumer.

Naturally to get fresh milk and sweet cream to market it had to be iced or have refrigeration of some kind. There were many small structures built near the railroad right of way for the purpose of chilling and holding the milk at the required temperature until such time as it was to be picked up by fast moving trains. These small buildings were called milk (holdover) stations and were usually located in remote farming areas where milk production was in abundance.

It worked like this — Say the dairyman's milking period was at 3:00 A.M. and that he lacked the proper chilling facilities to hold the milk at his farm, he would then deliver the milk to the track side milk station, and the same routine would be repeated at the 3:00 P.M. milking period. The northbound evening express would pick up and deliver the milk to market and the southbound morning train would return the empties, and so it goes, on and on. The majority of these community milk stations (quoting scant sources of information) as well as the refrigerated (milk cars) rolling stock were company owned, controlled and operated by such companies as Carnation, Borden, Page, and seeral others. Many of the milk stations were old discarded reefers equipped with refrigerating units where electricity was available others were iced, and too, there were many co-ops, also many individually owned cream testing stations which shipped via Railway Express and baggage.

I also understand that occasionally one of these milk stations could be seen alongside the passenger depot, say a few car lengths up the track from the depot. Should you place one near the depot, then at the other end of the depot on the opposite side of the track build a platform, this platform is used for unloading the return empty milk cans.

To build this cute little milk station will cost you practically nothing, considering that you build the three reefers (see Fig. 5) into rolling stock. The total cost to build all four units will not exceed two-fifty. So! Start building, order your materials from the list—read the article through as there is an additional list of materials for use on the reefers.

MATERIALS

Northeastern Milled Basswood

1 sheet—scribed sheathing 1/16 inch thick, spacing 1/32 inch.
1 sheet—scribed sheathing 1/32 inch thick, spacing 1/32 inch.
1 length overhanging freight car roof.
1 length floor to match roof.
1 length stripwood 1/32x1/16 inch.
1 length stripwood 1/32x3/32 inch.
1 length stripwood 1/16x1/16 inch.
1 length stripwood 1/16x1 inch.
1 length stripwood 3/32x1/8 inch.
1 length stripwood 1/8x1/ inch.

The materials listed are for those working in HO gauge—double them for O gauge. Also Northeastern freight car roofs and floors to match are available for TT-HO-S and O gauge.

The dimensional drawings are in feet and inches to fit all gauges — therefore all you need is a scale rule to fit the gauge you are working in.

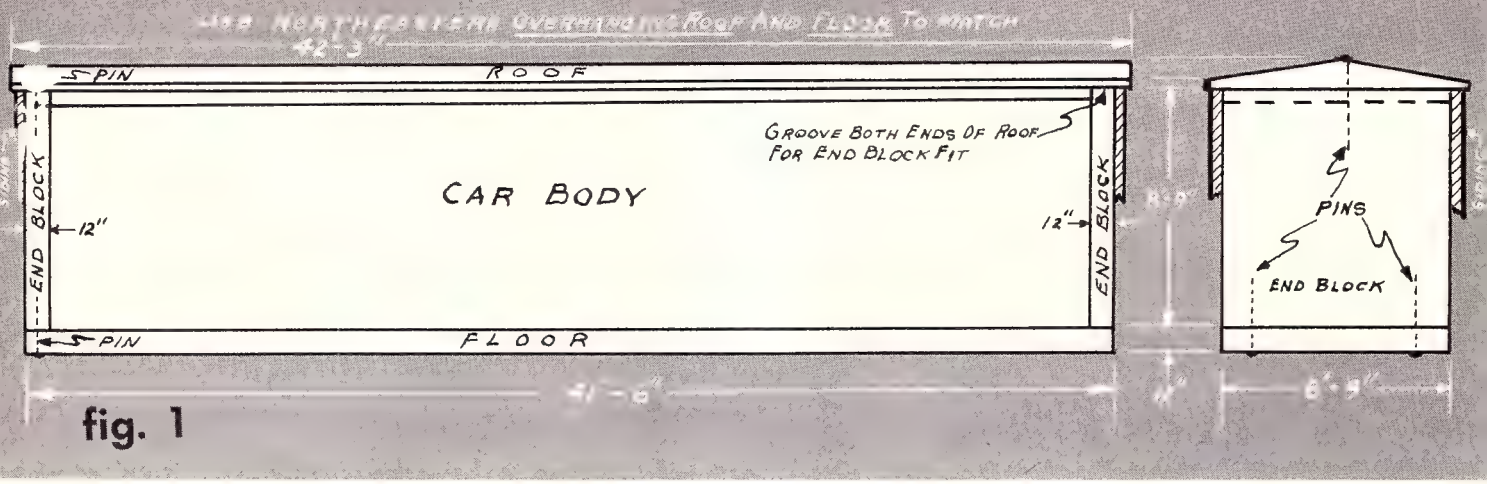


fig. 1

CONSTRUCTION

Fig. 1—Cut the floor, end blocks and roof according to dimension. Glue and pin the end blocks to the floor. Cut the groove in each end of the roof, then glue and pin the roof to the end blocks. Be sure all components are perfectly square before assembly and too, that the car body is in square before glue sets.

Fig. 2—This drawing shows a weather strip at the top of the sides and ends which is added when car has been assembled, therefore cut both sides and ends according to dimensions.

It isn't necessary to cut out the door, simulate by marking lines with hard lead (drawing "H") pencil, but, be sure to cut opening at bottom of the door for the 6 x 12" strip. Glue the front and rear sides to the car body first, add the 6 x 12" strip at the bottom of the door and allow a little time for the glue to set. Next glue on the ends and add the 3 x 12" strip at the bottom. Hardware for the door is fitted to the front side only. Of course you might have to make the hinges from file card stock and the latch bar from 0.20" wire—on the other hand your hobby dealer could have a few Silver Streak car parts in stock. If so, purchase a few reefer hinges, reefer latch bars, operating ice hatches (for reefers other than North Amrican Dispatch Frigicar), ladder stock, brake wheel sets and underframe kits. All these parts will come in handy when you build a few reefers into rolling stock, which I will explain (See Fig. 5) later on in the text. DO NOT add hardware at this time — later Fig. 3—This figure shows how the rear door is sealed and boarded up with 3 x 12" strip and the blocking beneath the car. Before we go any further, add the paper weather strip and board up the rear door. Paint all four sides reefer yellow and weather with brush wash—(brush wash was explained in last month's article). Add hardware now.

Paint with brush wash enough of the 6 x 9" underframe strip and glue it in place. The car sides should protrude 3" below the car floor, thus, glue the underframe strip to the car floor and up against the protruding sides.

Next the blocking—Methodically a prototype track side structure of this type is jacked up and a stack of old railroad ties is placed at each end and in the center beneath the car, then the car is lowered onto the ties. However, in this case it is different and, we will do it exactly as I saw it in the prototype, with 12 x 12" bridge timbers and old railroad ties. Therefore cut all the blocking components according to dimensions—arange as illustrated and glue and pin in place.

Fig. 4—Cut the sub-floor and the six posts according to dimensions—drill the No. 51 holes at points indicated in the sub-floor drawing. Add a drop of glue to the end of each post and push the post into the holes. Cut the scribed platform piece (allow the platform to overhang the sub-floor about two inches at front and both ends, at the rear both pieces are flush) and glue it to the sub-floor. Add the sway bracing and steps, paint with brush wash and attach platform to the car.

Roof—Paint the roof with black (quick drying) enamel and while paint is still wet, sprinkle with finely sifted sand, simulating a tar and gravel roof. Set aside to dry.

Lettering on the car can be of your own choice. I just happened to have a Walthers decal for Carnation Milk

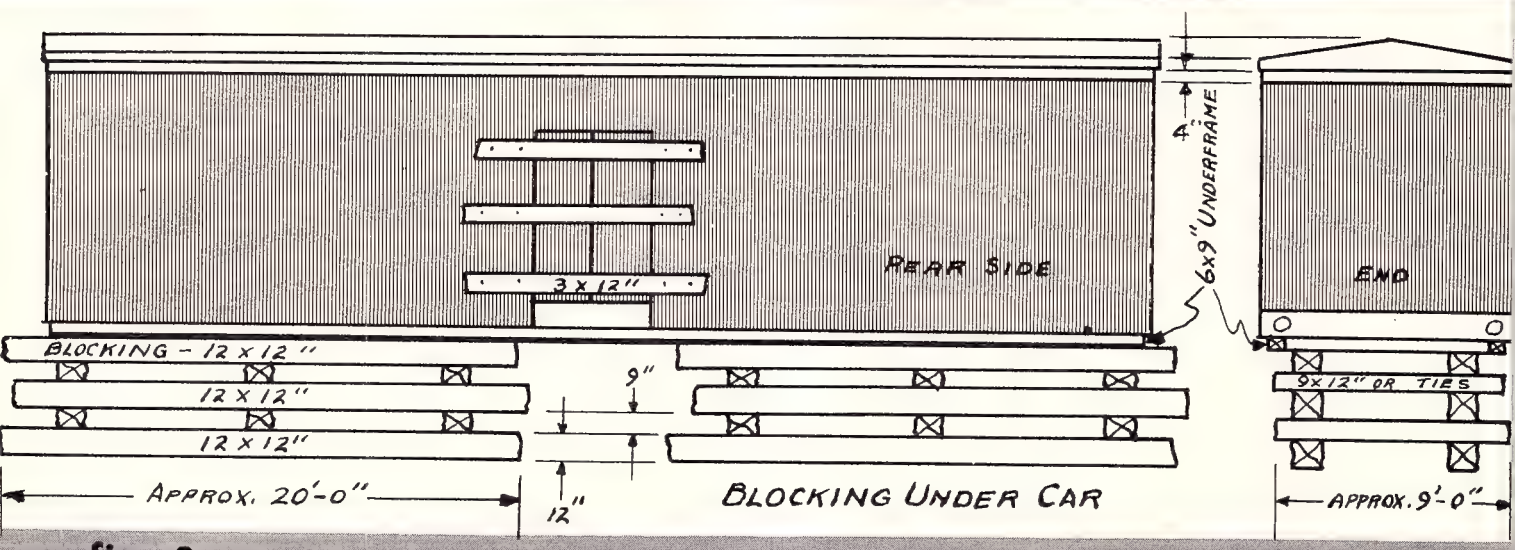


fig. 3

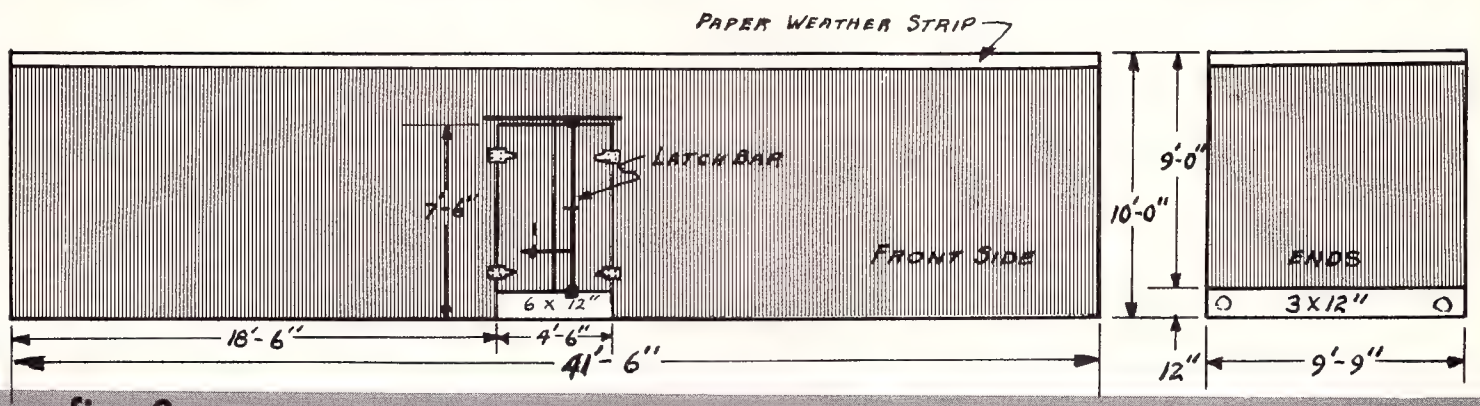


fig. 2

and used it on the model! Your hobby dealer probably has several other Walthers or Champ decals such as: Asco Milk, Carnation Milk, Page Milk, Hoods Dairy and Bordens Milk. Of course these decals were used on the old privately owned billboard (outlawed by ICC about 1929) car sides, but, it's just what you need for this track side model. Each model should be point of interest and have that certain something about it to create a lot of attraction and this little rack side eye-cacher dressed up in billboard lettering will do just that.

The plastic pick up truck I used in the model is made by Varney and costs only ten cents. At the left end of the platform make a ramp or fill so that the truck bed will be at a convenient level for loading and unloading the milk cans. The milk cans are Dyna-Model (at your hobby dealers) No. R-29, and the figure can be of your own choosing.

Remember this track side hold over station is equipped with a frigid unit and is powered by an electric current, therefore run two wires from your power line to the car.

Car adjacent to track—the front of the platform is exactly 6'-0" from center line of the track.

Rear view of the milk station reveals the simplicity and charm of tihs small structure. The body may be built from scratch or can utilize any old outmoded car body which the reader may have lying around his model railroad workshop.

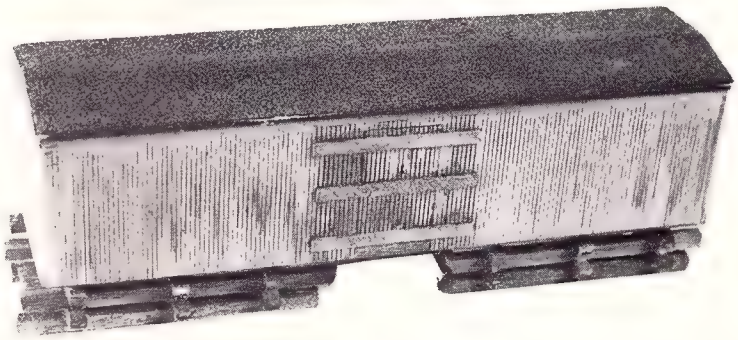


Fig. 5—This figure shows how the foregoing construction can be converted into an elaborate piece of rolling stock. (Note: The Frigicar does not have any ice hatches) Considering that you have purchased the freight roof and floor for the track side milk station, there should be enough of this material left to make three wooden reefers into rolling stock. In addition to the hardware previously mentioned you will need a few miscellaneous items which are made by Northeastern and should be ordered along with the freight roof and floor as follows: roof walks, lateral roof walk, bolsters, and preformed grabirons. Be sure you specify the gauge you are working in when ordering.

Next Month—"The Milk Distributing Plant."

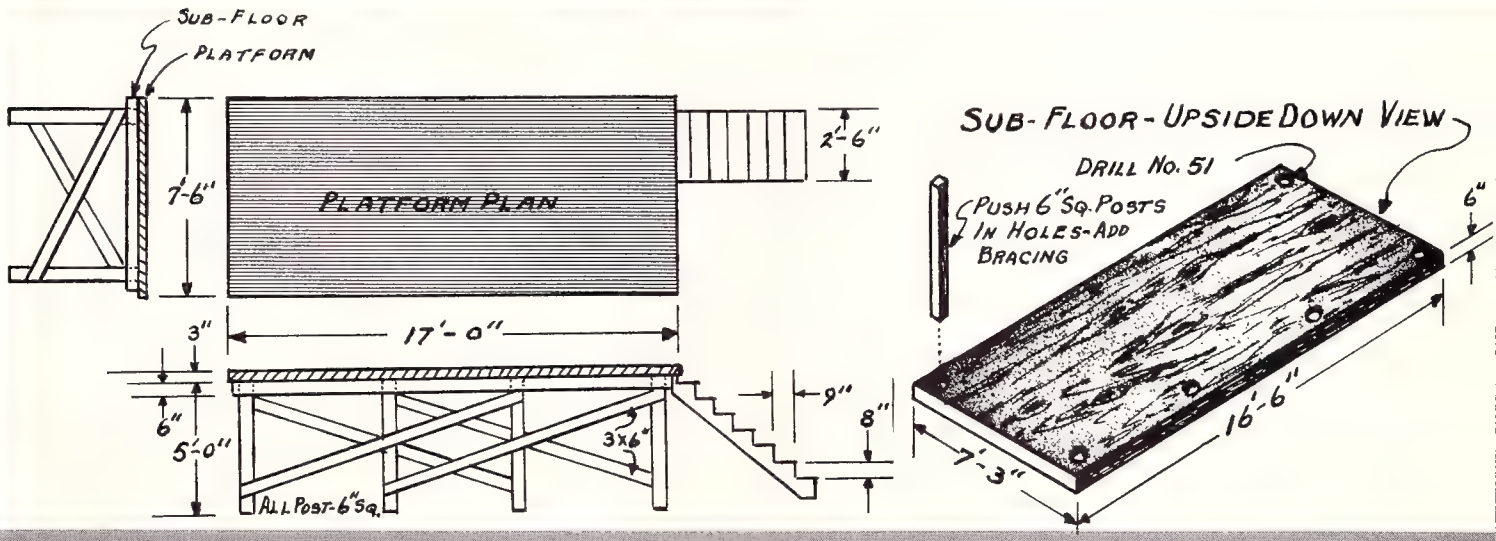
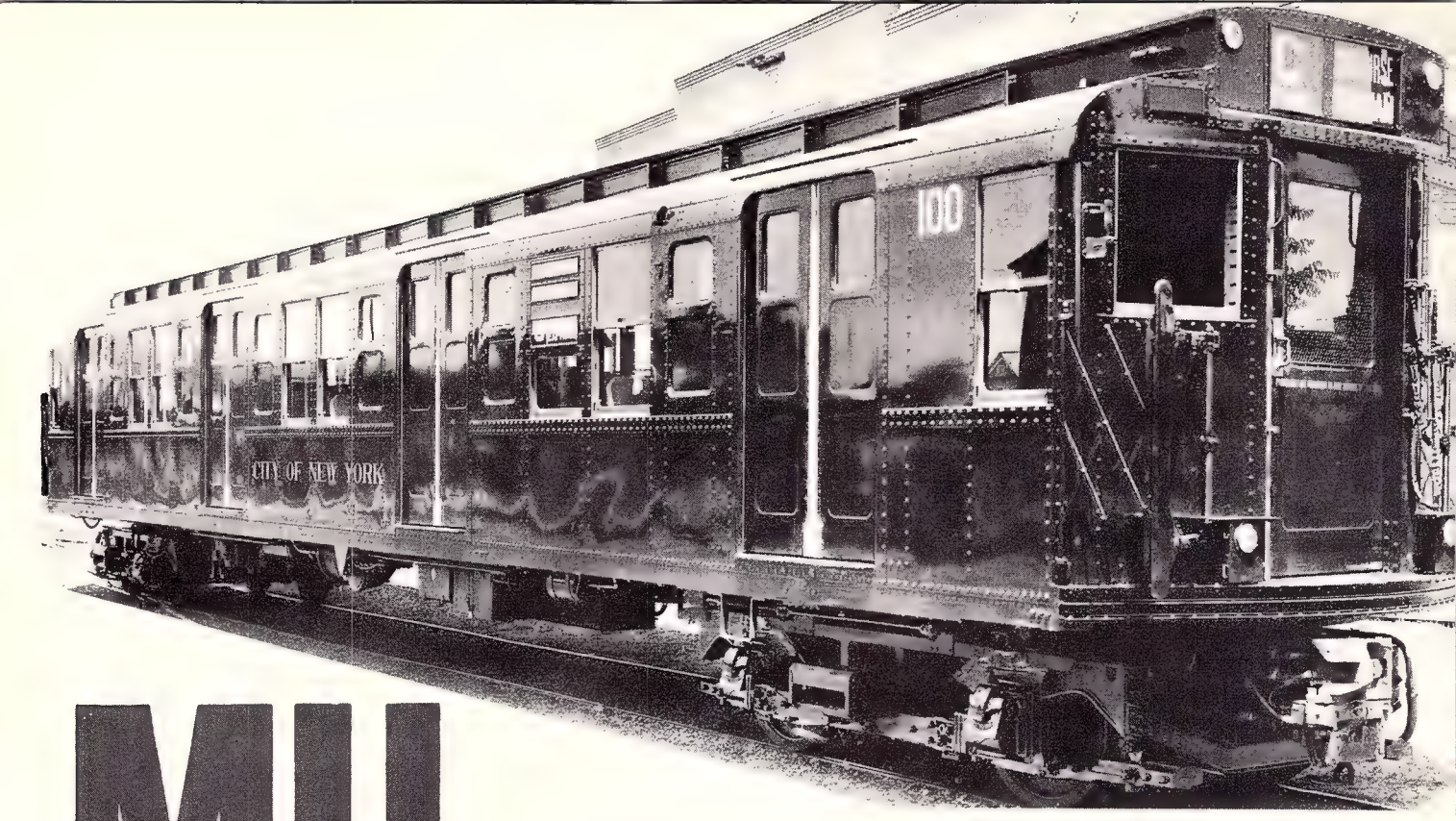


fig. 4



MU train wiring

by John Kemp

VIRTUALLY ignored in recent years by the model building fraternity are the heavy multiple unit cars operated by many of our large commuter carriers. The heavy electrics, sliding along either with third rail or overhead wire pickup have a seeming awkward grace unmatched by Budd cars, diesels, or even steam locomotives. Possibly their rarity in HO is due largely to the almost universal use in HO of two rail, since almost every large O gauge line using third rail has at least a few MU cars.

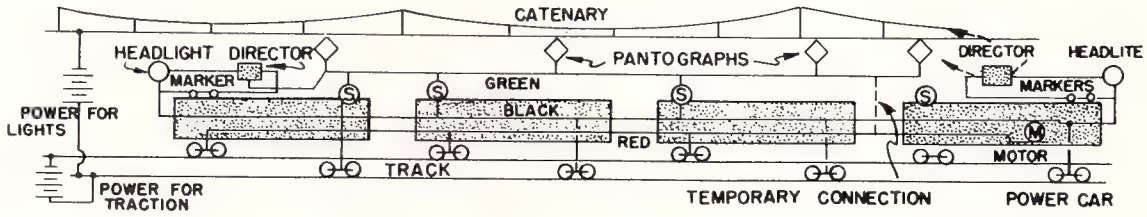
Kits for heavy MU cars are available in OO gauge by Kemtron, and in both O and HO by Walthers. The remarks which follow, while aimed primarily at the HOer, are certainly applicable to almost everyone regardless of gauge. Many of the standard HO coaches are also readliy adaptable to MU conversion, and especially the molded all plastic coaches of HObbyline. Needless to say, many trolley cars can also be operated MU, or in a train. MU in model railroading is not really a correct term, implying a train of motorized cars controlled from one. In model railroading we take it to mean a train of *what looks* like motorized cars, but of which only one may be powered and the rest all dummy.

If you have the confidence to tackle converting a passenger car into an MU car you can figure how to mount a Walthers, Lindsay, or other power truck (Heavens, *not* one with diesel side-frames!!!!). You can mark rectangular windows on the ends, drill one small hole in each, and saw them out with a jewelers' saw. (For Pennsy MUs, measure up 5'9" from the bottom of the door on each side, center punch, and there drill about a 17/64"—o.k., settle for ¼"—hole). One interesting thing is that on the model car bodies as they come, the doors could not be opened if the traps or gangways were left down, as they *must be* when doors are closed! Hence, you should take your trusty jewelers' saw and cut in the bottom of the door above the steps as shown on the drawing. The cut should reach as high as the top of the floor, then straight across.

Headlights are made from lucite rods. Just center-punch then drill into the curved roof ends. Drill straight in toward the center of the arc, then bring the car around on the drill so that it mills the metal or plastic so you can slip the headlight rod straight in. Once in, the headlights are held with Goo on the inside. Since only the end headlights of a train need work, the intermediate ones may be short, in fact may be pieces of wood or solid metal. But the end, to-be-working headlights should be long enough to reach in past the curves of the roof ends. Marker lights may be turned from lucite rod or obtained from Scalite (mine were left-over from some engine illuminating jobs). They may be clear, with ends daubed with red, or red all the way through. Again you need these on the outer ends of the end cars only. Drill snug holes at the upper, outer corners of the ends, and insert the bits of lucite, using Goo if need be.

I'll now jump a bit ahead of the construction procedure and tell how I lit the lights. I used Kemtron grain of wheat lamps. These will fit in a ⅛" hole (may have to enlarge slightly with file for some) in a bakelite piece. They usually will stay in place, but if not may be sealed in with scotch electrical tape at the back. One piece of bakelite (it should be about 3/16" thick anyhow) fits up inside the clerestory of the roof, curved to match its top. The single ⅛" hole in it lines up with the back of the lucite headlight. This piece is held in place with a pair of 00-90 or 0-08 screws down from the top. The two marker lights are in holes drilled lengthwise through another piece of 3/16" or thicker bakelite. This piece must have its end shaped to match the inside of the car end, and its edges rounded to fit the inside of the car roof. You can use a file or a small grindstone for this job. This piece is held in place with a pair of 00-90, or 0-8-0 screws down through the shoulders of the roof. It should come back *to* the headlight block, and its top may have to be routed out a little to clear the lucite headlight bar.

When passenger density on your railroad is heavy, let economical multiple unit trains handle the commuter trains near the big terminal. Here are hints and ideas on easily converting coaches and wiring.



In metal cars the marker light holes in the bakelite may be drilled straight through. But for use in plastic cars, the holes should be angled in toward the center so that the little bulbs, which get very hot, can be kept pretty far away from the plastic (else you will have a nice puddle of plastic!). I wired my marker lights in series so they burned dimmer, but this is not absolutely necessary.

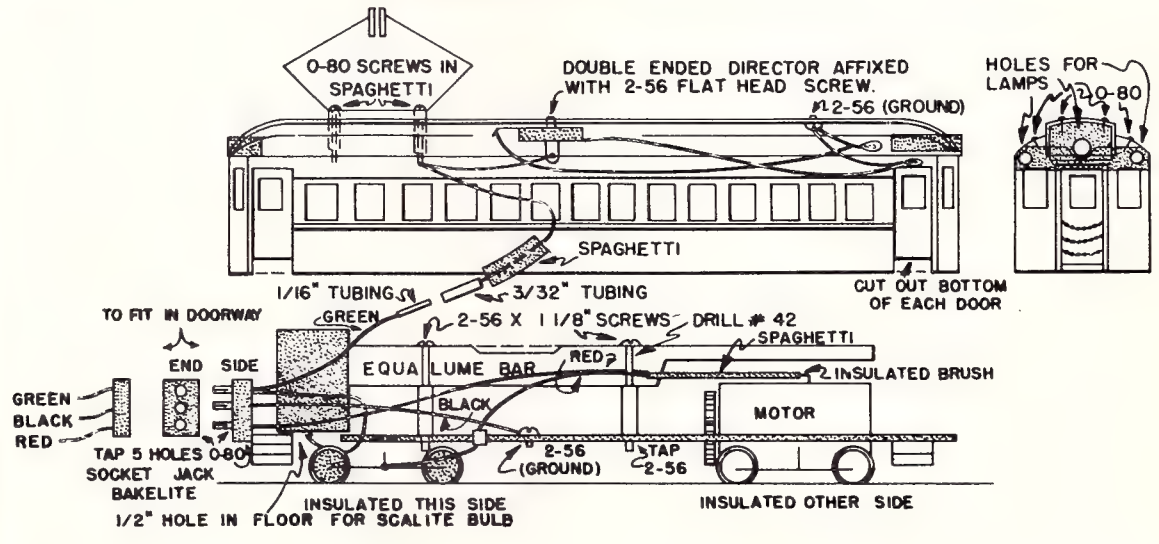
To accomplish automatic reversal of head and marker lights, I installed a Scalite double ended Director. On the metal car which I used as a power car, this fitted inside the clerestory and was held there by a flat head 2-56 screw tapped into the roof. I put a lining of electric tape around the inside of the roof to prevent possible shorts. On a plastic car, the inside of the clerestory is narrower and the Director must be put in on a slant. This should be done toward the end of the car which will later have the narrow end of the Scalite Equilume lighting bar. Actually one double ended Director would have done the job for both headlights and both sets of markers, but this would have necessitated running two more wires through the entire four car train, as hinted by the dotted lines from the director in the power car on the drawing of the train. I put a Director in each end car and saved wiring. The wiring for the Directors is shown, and may have to be reversed if the wrong lights come on with the right polarity.

My MU system uses two-rail power for traction, with the overhead catenary and one rail supplying power to the lights only, so that the interior and marker lights will stay lit even when the train is stopped, or going slowly. Accordingly, a pantagraph was required on each car, altho actually I use only the end car pantagraphs for pick-up.

The International pantagraph is a cinch to attach to one of the plastic cars. Just drill four No. 56, holes at the right places, tap 0-80, and hold down the "pant" with long 0-80 screws through the insulating beads provided. To keep the holes from coming right at the edge of the roof, the lengthwise pieces at the bottom of the pantagraphs can be bent inward slightly. Be careful with the solder that holds the pantagraphs together, it being quite brittle. Resoldering the base of one of these pantagraphs is quite a picnic, even if you remove the springs. To insulate the pantagraphs from metal car roofs, it is necessary to run 0-80 screws down through pieces of spaghetti that are goot tight fits in the holes you drill in the roof—radio spaghetti that is, not the Italian kind.

Car lighting is accomplished by means of Scalite kits. You have to drill or saw a ½" hole in one end of each car, between the truck center and the vestibule (that isn't there). Then use 0-80 machine screws to attach the socket from underneath so you can drop it out if you need to replace a bulb. These screws should be along the center line of the floor so that the truck wheels do not snag on them. The Equilume bar must be

MU TRAIN WIRING FOR HO - NO SCALE



cut to a suitable length, and on the motor car thinned down to fit over the top of the motor if necessary. To hold down the bar, I drilled through it No. 42 at two places, then ran long 2-56 screws (used by Mantua and Penn-Line to hold down the front of their HO engines) down into tapped holes in the floor, passing through ½" lengths of tubing to hold the car rigidly at the correct distance.

A fault with most HO car lighting, aside from its going out at every stop, is that it flickers too much while the train is in motion. This is because the usual practice is to pick up with the two wheels of one truck and return with the two uninsulated wheels of the other truck. Dirty wheels, dirty rails, and insulated crossing or switch frogs can cause interruptions in current, thus giving poor lighting. The positive pressure of a pantagraph or pole is less likely to give poor contact, but you still have to return through two wheels on one rail. Hence it is almost essential to pick up and return current through the wheels of more than one cat. I chose to use the front and rear cars since their tops had to be demountable anyhow for access to lights, Directors, motor, etc. (However, where there are automatic train stop sections, it might be advisable to pick up with *front* two cars instead). Similarly the front and rear cars pick up power for the motor, preventing stalling on dirty track or insulated frogs when going slowly.

I had to run wires all through the train and since only three were needed chose Atlas color coded three-wirecable as sold mainly for use with their Snap-Switches. The wires can be run through the open end doors of the cars since in my train I have them permanently coupled together. As can be seen from the train wiring diagram the green and black wires must be cut at one point in each of the intermediate cars and branch wires soldered in to run to the Scalite bulbs in these cars. However, I did not wire in the trucks or pantagraphs of the intermediate cars (such connections are shown dotted), thus permitting me to cement the car bodies in place once and for all, since I used plastic cars for the non-motorized cars because of their lightness. In addition the HObbyline trucks, from which you must cut the coupler extensions, have ALL insulated wheels and would have to be replaced to have them pick up. The red wire runs all the way through unbroken to the rear truck of the last car.

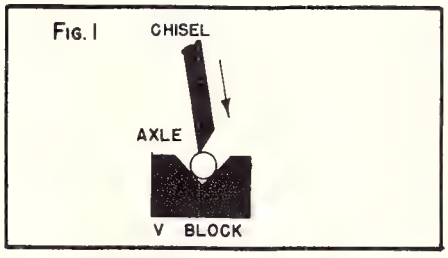
I figured that in the course of time it would sometimes be necessary to run the motor car alone for checking purposes, so I put a plug just in the back door of the motor car and ended the three-wire Atlas wire here in socket to attach to the plug when the train was hooked and wired up. The three wires should be separated for a few inches before this socket to permit maximum flexibility of the wire on curves and crossovers. The plugs and sockets are made from bakelite a little narrower than the end doorway, as shown on the drawing. They should be marked out and made at the same time. The plug has three No. 56 holes through it tapped 0-80 and countersunk at the back to get the most length out of the 0-80 screws run through the holes. These screws are now prongs of the plug and should each be split with a jewelers' saw. At each side drill two No. 56 holes up from the bottom and tap these also 0-80. Match these up with two No. 52 holes up through the end of the floor and you can screw the plug just inside the doorway.

The socket attached to the second car is of course left free. It is also made from bakelite with three pieces of 3/32" brass tubing (ask your hobby dealer) inserted in No. 42 holes and riveted over at both ends with a center punch. Wires are attached to plug and socket with solder. You could put such plugs at the ends of all the cars and have a train you could make up and break up but it hardly seems worth while for the usual model railroad running.

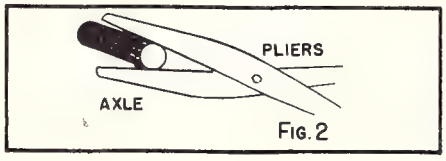
Since the plug is attached to the floor, there must be one wire, the green one carrying pantagraph power, running from the top of the car to the floor. (The ground from the lights is carried through the car body to the floor on the metal cars; on plastic cars a second wire for the ground is required between body and floor). It is a nuisance to have car bodies that cannot be completely removed without unsoldering wires, so I devised the plug-in wiring system shown on the drawing. The wire from the roof terminates in a piece of 3/32" brass tubing into which it is crimped with cutting pliers. The wire from the floor or from the plug terminates in a piece of 1/16" tubing into which it is crimped. The end of the 1/16" tubing is then split with a jewelers saw and slightly spread. One plugs into the other. To keep the "hot" tubing from shorting out against anything, a short piece of spaghetti may be slid over it.

TIGHTENING DRIVERS

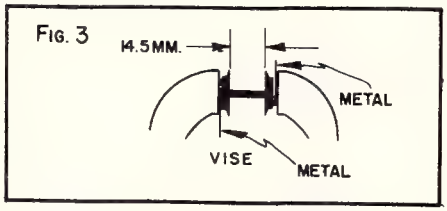
ONE of the most discouraging things to an HO model railroad owner is to have one or more of the driving wheels of his locomotive come loose on the axle. This is especially apt to happen on inexpensive English Yardbird switchers which did not have knurled axle-ends, relying on friction to keep the opposing driving wheels in quarter. Of course when one wheel comes loose the drivers get out of quarter and the engine will not run.



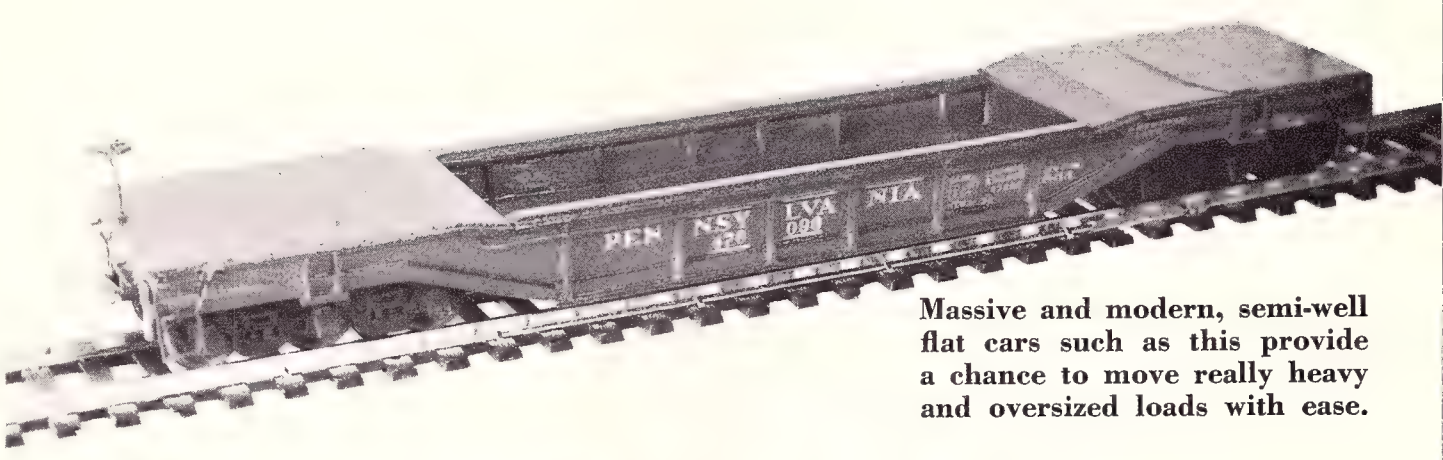
The remedy is NOT to try to solder the wheel back solidly since the zamac center on the driver will not take solder well and even if it did the end of the steel axle would not provide a good enough surface for solder to grab. *Remove* the pair of drivers, then pull off the loose driver. Knurl the end of the axle yourself. There are two ways of doing this, depending on what tools you have available. If you have something like a V-block and a chisel, you can raise several ridges around the end of the axle as shown in fig. 1. If you do not have this, take a pair of cutting pliers such as "dikes" and bite the end at several places, resulting in a herringbone pattern of raised ridges, as in fig. 2. Either will do.



Then slip the driver back on easily, adjust to get quartered in the same respect as the other pair of drivers (check on insulated and uninsulated drivers). Then push the wheel on as far as possible with your fingers. Next press on all the way in a vise, inserting bits of metal to allow for the raised hub for the crankpin. When "home" the backs of the flanges should be 14.5 mm. apart which you should check at four places on the circumference.



Replace wheels in engine, and add side rods. If there is a slight bind, take hold of opposing drivers with pliers and you'll still be able to move them slightly to get exactly in quarter in which position the wheels with rods should revolve freely.



Massive and modern, semi-well flat cars such as this provide a chance to move really heavy and oversized loads with ease.

PENNSY 48 Ton Flat Car

by G. A. Stehle

RAILROADS are often called upon to haul heavy, high loads. Oftentime the load is so large that clearances make it necessary to reroute the shipment by some longer route where clearances are less tight. Because of these head room clearance difficulties, many railroads have built special type flat cars for these heavy, bulky loads. One car of this type is the Pennsy F-33 flat car.

I thought that the Pennsylvania RR. class F-33 long heavy well flat car with its six wheel trucks and 125 ton load capacity would make an interesting model to build. This all welded car was built by the Pennsylvania RR. at the Altoona Car Shop in 1938. It would be a useful car on any model railroad, especially on one having many tunnels and bridges or other close clearances. Besides being a useful car, the semi-well flat adds variety to your rolling stock and is a fascinating car to watch in action because it rides only a few scale inches off of the rails.

In building my model I used basswood and special wood shapes. The drawings were prepared to HO gauge scale so that the detail will be easy to copy or trace direct. Workers in other gauges can use the same materials and I would recommend that they have the drawings photostated to the exact size for their scale to eliminate a lot of mental computation. Let's keep model railroading fun!

Start Construction

Start construction by cutting two sides from 1/32" thick bass wood sheet and shape. Then place one against the other to make sure that both sides are cut exactly the same. Trim or sand paper to even up the sides if necessary.

After you are satisfied with the sides, cut out the well floor from 1/32" sheet wood. When you lay out the well floor be sure that the grain of the wood is in the same direction as the scribing will be. Use a blunt instrument to scribe the floor every 1/16" apart to represent the individual floor boards. Commercial scribed wood is available at some hobby shops. Take care that your corners are square.

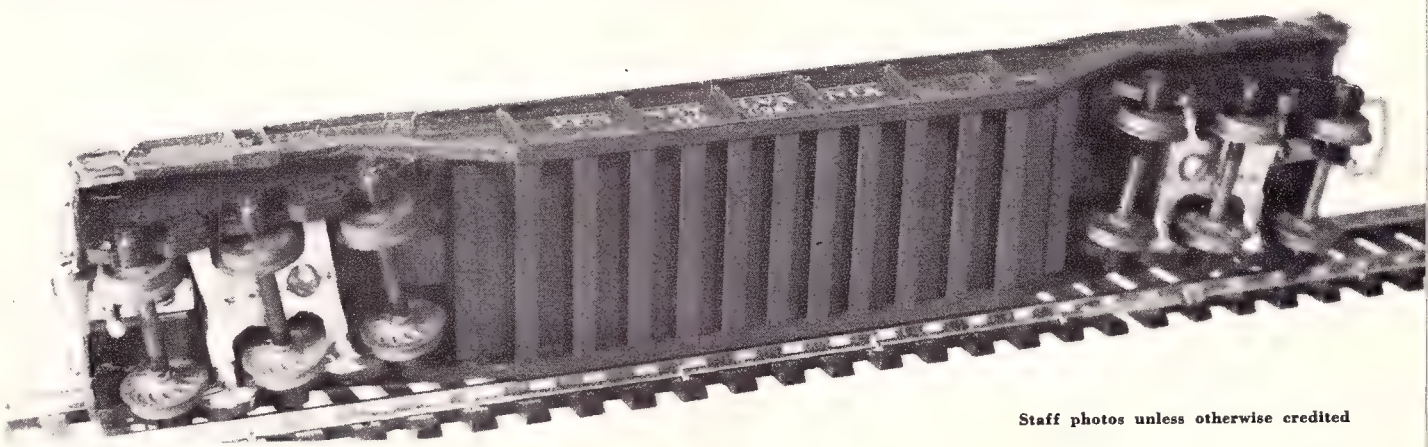
The two well ends come next and they are cut from 1/32" thick wood sheet and shaped. Make sure that the ends are cut alike. Next cut two well ends and floor supports from 1/8" wood angle. Cement the angles to the bottom of the well floor and let dry. When the cement has set cement the well ends to the floor and angle as shown in the side view at the center of the car drawing.

Lay out the two sides for the bottom side supports. The bottom side supports are cut from 1/32" x 3/32" strip wood shaped as in the drawing. Cement the three horizontal supports on the bottom of the car sides. The two angular pieces are next. It will be necessary to trim the two angular pieces at each end, so that they will butt neatly against the other horizontal pieces. When the supports are dry lay out the sides for the in-side side braces, bolster side braces, and out side side braces. Cement the two sides to the well floor, checking with the center side view drawing for the location of the sides. Set a side to dry. Make sure that the car sides are even on the ends.

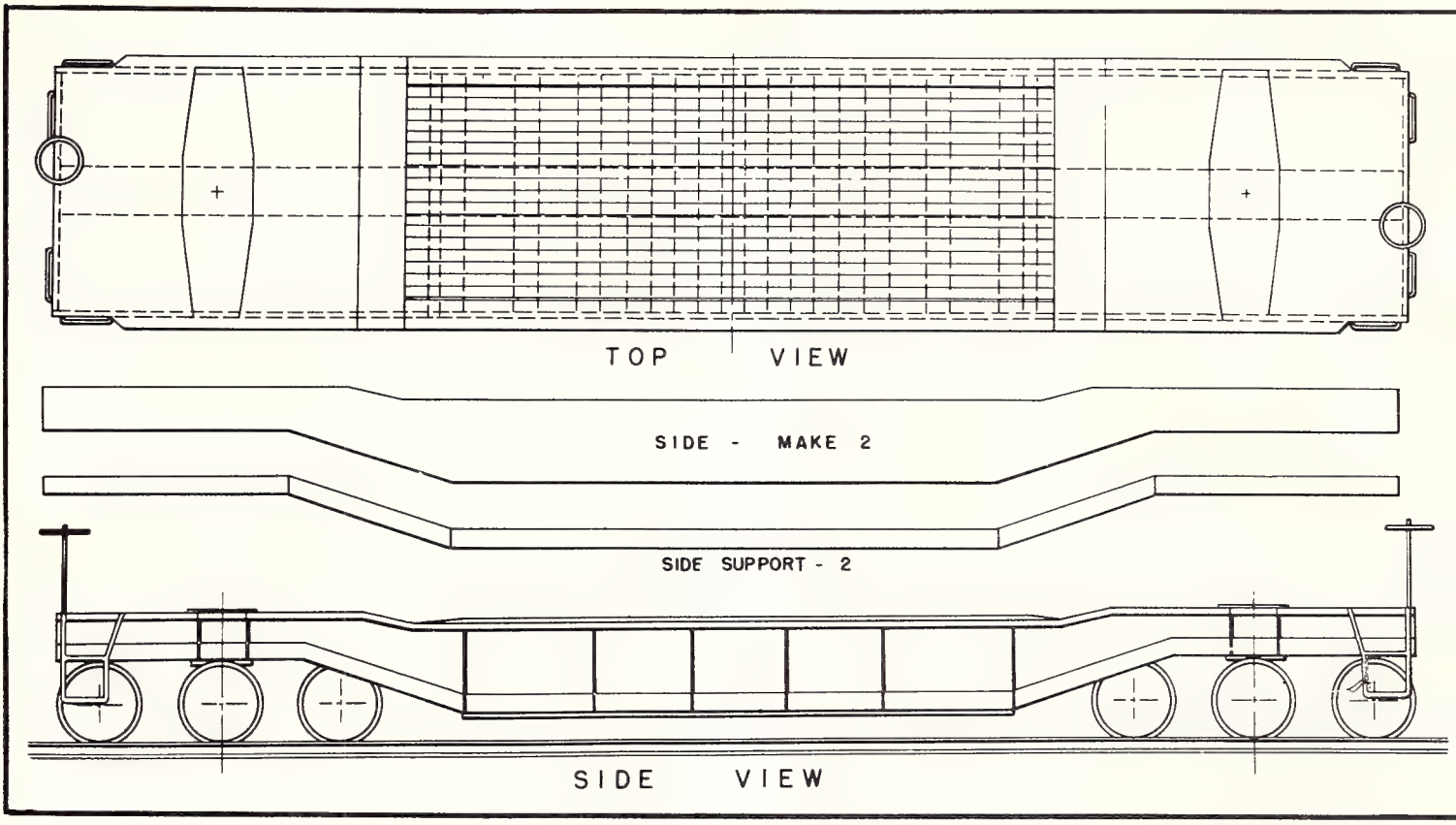
Cutting the Sub Floors

Cut two sub-floors from 1/32" wood sheet. Trim or sand one end of the sub-floor into a wedge shape as shown in the drawing. Cement the sub-floor between the top of the car sides, making sure that the sub-floor is flush with the car sides and 1/32" in from the ends of the car sides. The wedge shaped part of the sub-floor goes towards the well ends.

Next cut two car ends from 1/32" wood sheet and shape as in drawing. Cement the car ends between the two car side ends and make sure they are



Staff photos unless otherwise credited



flush with the top of the car side ends and sub-floor.

From the same material cut two floors and shape like in the drawings. Do not score too deep or you will cut this part in two. Cement the floor to top of car sides, ends, and sub-floor. The scored part toward the well ends is even on the car ends and 1/16" over the car sides.

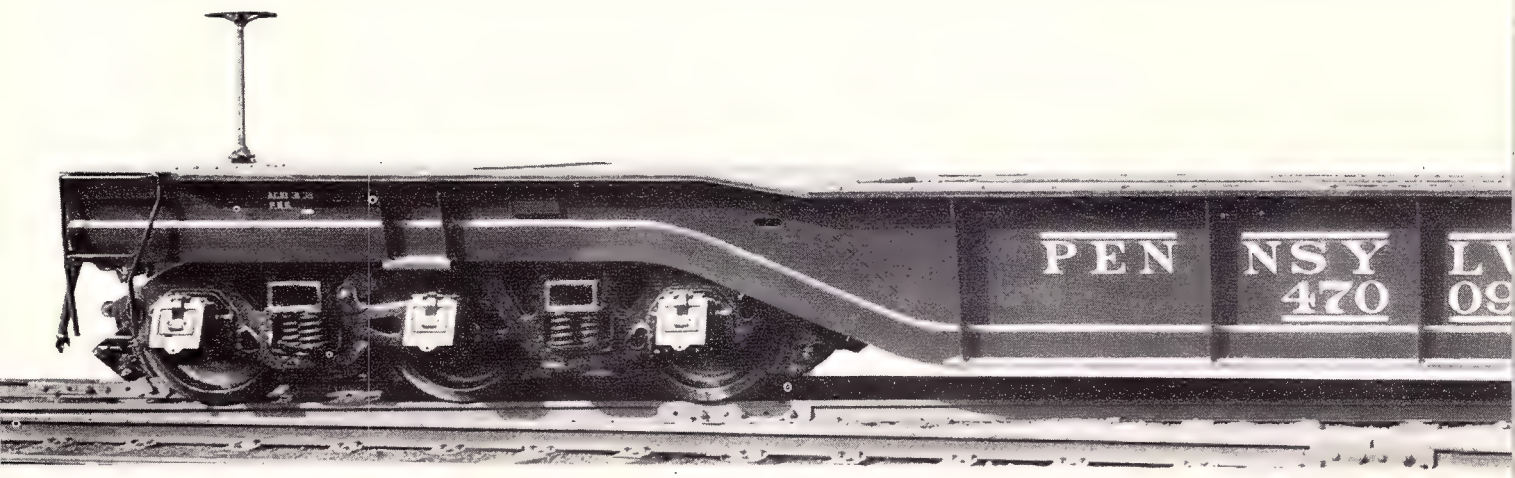
Cut two top sideplates "A" from 1/32" x 3/16" strip wood. Cement this part to the top of the well sides and make sure that they are even with the floor sides. Next cut two top side plates "B" from 1/32" x ⅛" strip wood to length. Trim or sand both ends to a wedge shape as in the drawing. Cement on top of the side plate "A" as shown inside of the car drawing and end view center section of car.

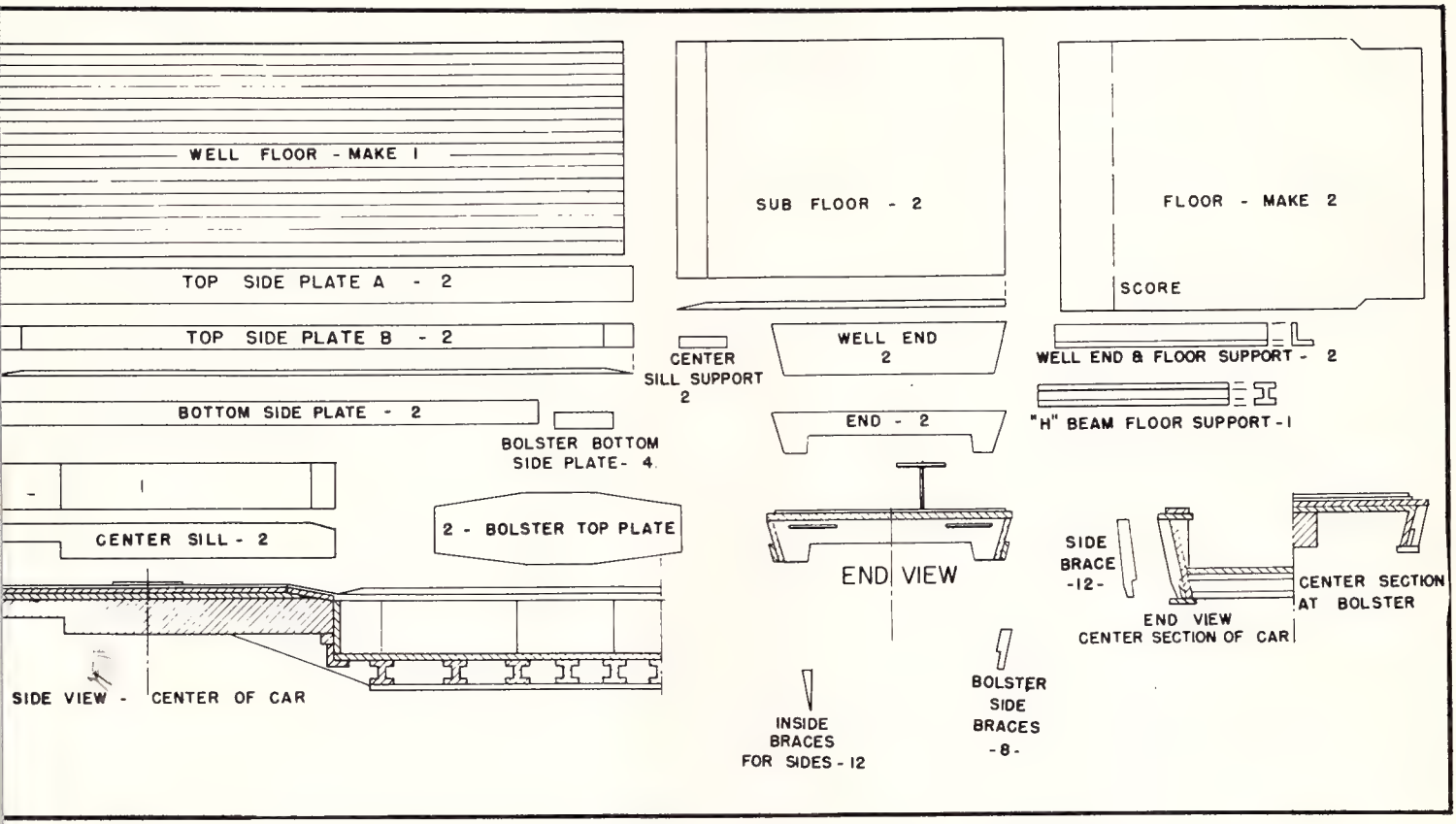
When these parts are dry, turn over the car assembly and lay out the bottom of the well floor for "H" beam floor supports. The eleven "H" beams are cut from wood "H" beam section cut to length. The ends will have to be sanded on each end so that they fit between the car sides as in end view center sills. The two center sills are section of car drawing. Cement these parts in place.

While the cement is drying on the car assembly, we can make the two center sills. The two ecnter sills are cut from 3/16" x ¼" strip wood and are shaped as in the drawing. The car assembly should be dry enough for you to lay out the location on the bottom of the car assembly for the center sill. Cement the center sills in place and make sure that they are properly centered and fit neatly between the car ends and well ends. Check side view center and bolster center setcion of drawings. Cut two center sill supports from 1/16" square strip wood and cement these parts on the bottom of the center sill and well ends. See side view center section.

Cut twelve in-side braces from index card material and cement on the inside of well section of car sides. From the same material cut twelve outside side braces and shape. Cement to the location marked on the car sides. Also cut eight bolster braces from the same material. Cement these braces in place as shown on the inside view and end view center section of car, and also in the bolster center section.

Cut two bolster top plates from index card material as shown in drawing and cement to the top of the car. Cut two bottom side plates from 1/32" x ⅛" stock and cement to bottom of car sides at well section. From the same material also cut four bolster bottom plates and cement in




WELL FLOOR - MAKE 1
TOP SIDE PLATE A - 2
TOP SIDE PLATE B - 2
BOTTOM SIDE PLATE - 2
BOLSTER BOTTOM SIDE PLATE - 4
CENTER SILL - 2
2 - BOLSTER TOP PLATE
SIDE VIEW - CENTER OF CAR
SUB FLOOR - 2
CENTER SILL SUPPORT 2
WELL END 2
END - 2
END VIEW
INSIDE BRACES FOR SIDES - 12
BOLSTER SIDE BRACES - 8 -
FLOOR - MAKE 2
SCORE
WELL END & FLOOR SUPPORT - 2
"H" BEAM FLOOR SUPPORT - 1
SIDE BRACE -12-
END VIEW CENTER SECTION OF CAR
CENTER SECTION AT BOLSTER

place as shown in the side view assembly and end view center section of car. Also the center setcion of the bolster drawing.

Adding Detail

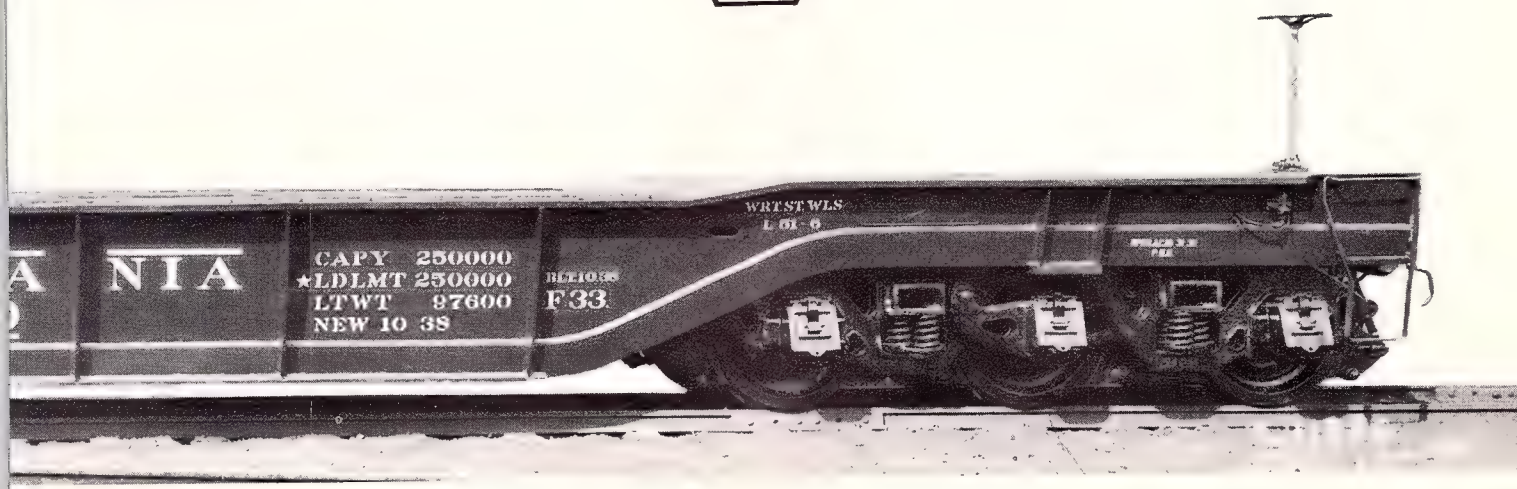
The car assembly is now ready for grabirons, steps, and brakerods. I used Northeastern pre-formed No. 1 grabirons but you can use office staples or bend your own from No. 26 wire. The four steps are cut from ladder stock material and are bent to shape as in the drawing. These wire parts are best attached to the car body by first drilling No. 76 holes where the parts are to be inserted. For the two brake rods, drill No. 76 holes and use No. 26 steel or brass wire for brake rods. The brake rods are mounted on each end of the car as shown in top end and side view of drawing. Cement brake wheels to brake rods.

Paint the model as you will and add decals. The prototype model is painted tuscan red and the prototype photo shows the correct placement of lettering on the model. Next add couplers and then the trucks. Red Ball Buckeye trucks were used on my model. Drill a No. 50 hole in the bottom of the floor and attach with two No. 2⅜" round head wood screws.

To get the best operation out of this car it should be loaded. Either transformer or machinery loads are available commercially or can be built from scrap. Such loads will provide juts the right finishing touch for the model.

MATERIALS

Northeastern Scale Models's
Bass Wood Sheets
1/32" by 3" by 24"
1/32" by 3/32" by 24"
1/32" by 1/8" by 24"
1/32" by 1/16" by 24"
1/16" by 1/16" by 24"
3/16" by 1/4" by 24"
Special Shapes
1/8" wood "H" beam
1/8" Wood Angle
Miscellaneous Materials
8 No. 1 Pre-formed grabirons (Northeastern)
2 Red Ball Brake Wheel No. 12
1 Pr. Red Ball 6 Wheel trucks A-9 (Buckeye)
1 Pr. Couplers
8" Ladder Stock
4" long No. 26 Steel or Brass Wire
2 No. 2-1/4" Round Head Wood Screws
3" by 5" Index Card Material
Paint and Glue
Decals Champ Road Name Set
P.R.R. (HN-80)
(Dimensional Data Set)
Flat Car No. HD-7



CALIFORNIA PACIFIC

The California Pacific Railroad appears to be quite larger than it's size actually indicates, thanks to skillful blending of foreground scenery with the painted backboard that forms part of the layout's traveling case. Plans for the small house appear on the next page.

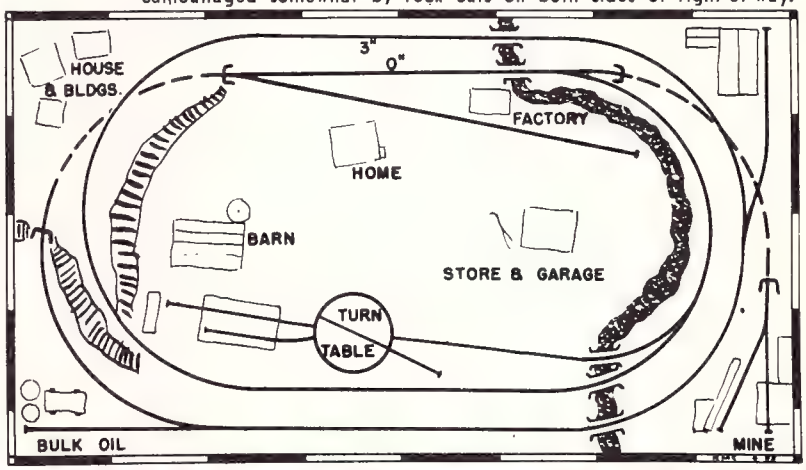
From the jet black appearance of this all brass diesel switcher, the road's superintendent of motive power doesn't go much for the gaudy color schemes that are featured on most growlers. Engine hauls frt.

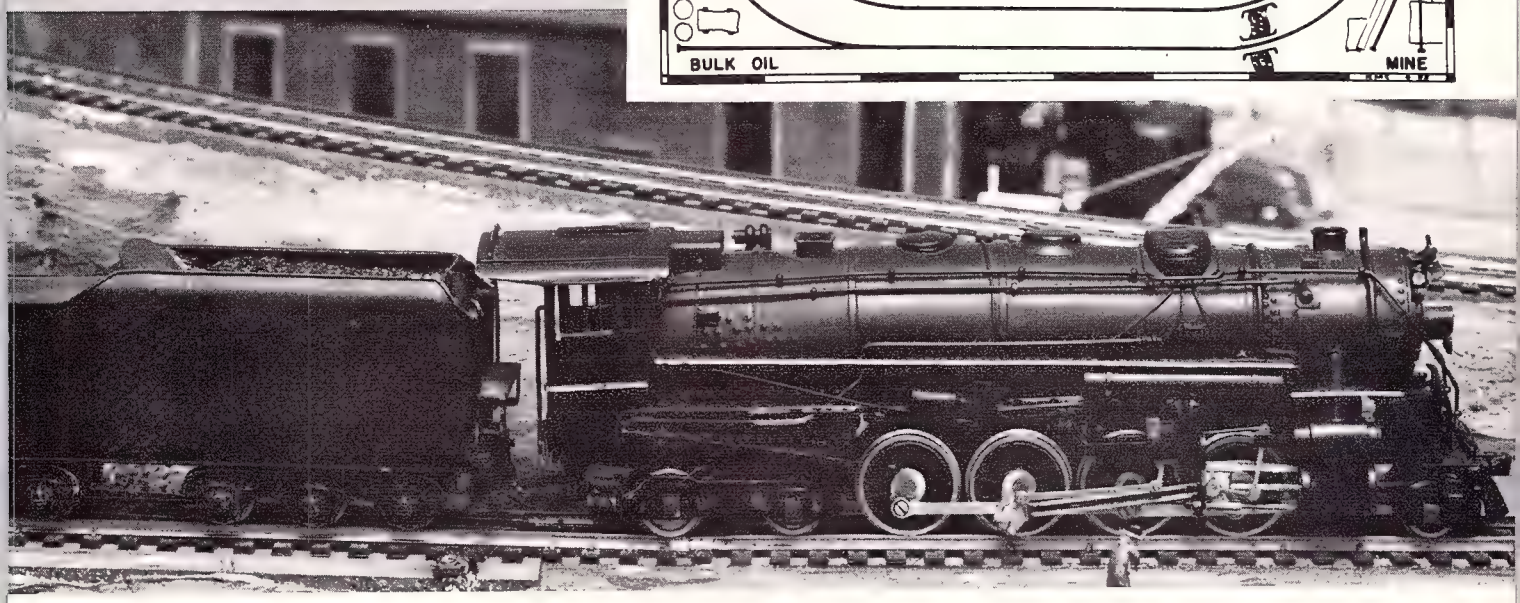
Louie Pollman's first attempt at scratch building a steam locomotive resulted in this hefty berkshire. Only the drivers, tender trucks, motor and couplers were purchased, and construction was carried out under watchful eye of a Japanese craftsman. Engine takes 24" curves.

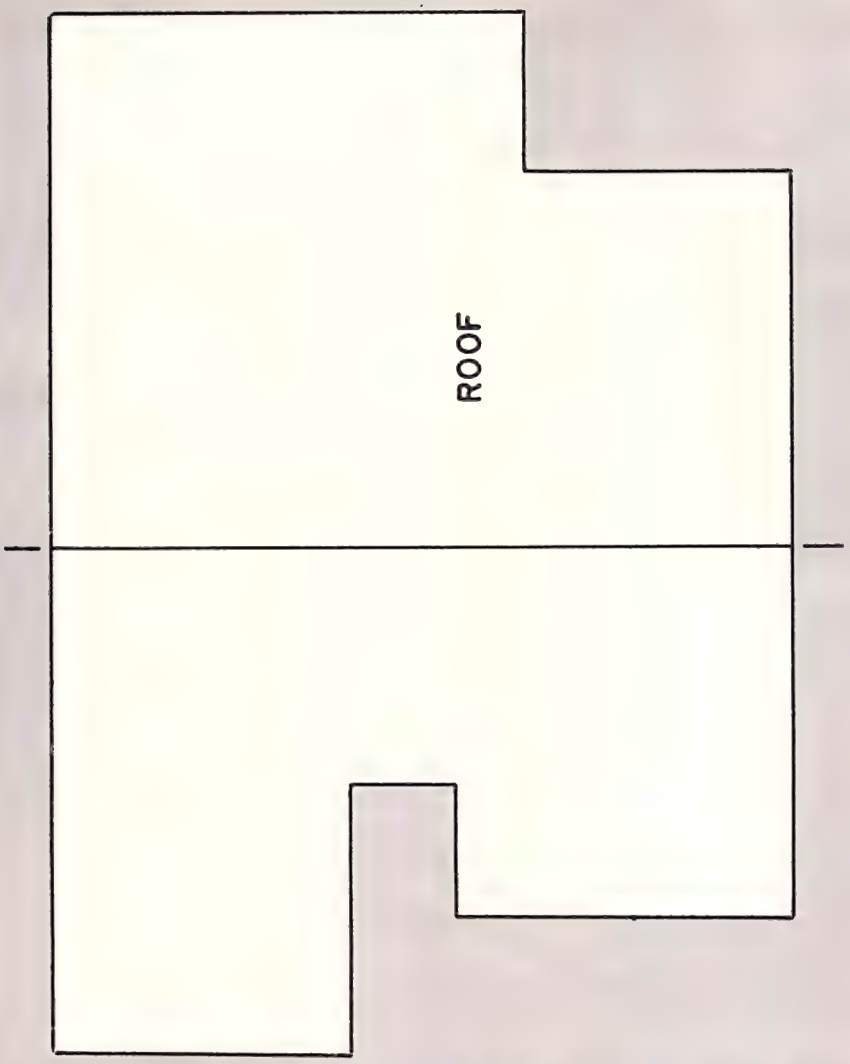
This small plant helps provide revenue for the CalPac line and we wonder if the boss has missed the workman grabbing a quick smoke out back. Sharp curve at right lacks prototype look but has been camouflaged somewhat by rock cuts on both sides of right-of-way.

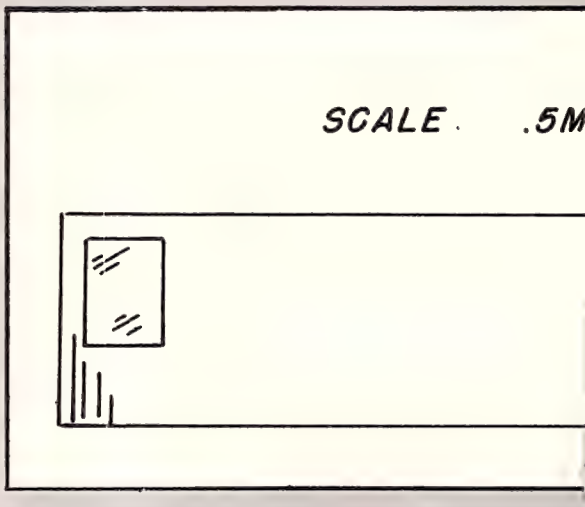
From the looks of the fine scenery on the California Pacific Railroad of Louie Pollman, you'd never suspect that this 4′6″ x 8′ has travelled half way round the world in a box measuring only 18″ x 4′6″.

Photos and plans from Louie Pollman



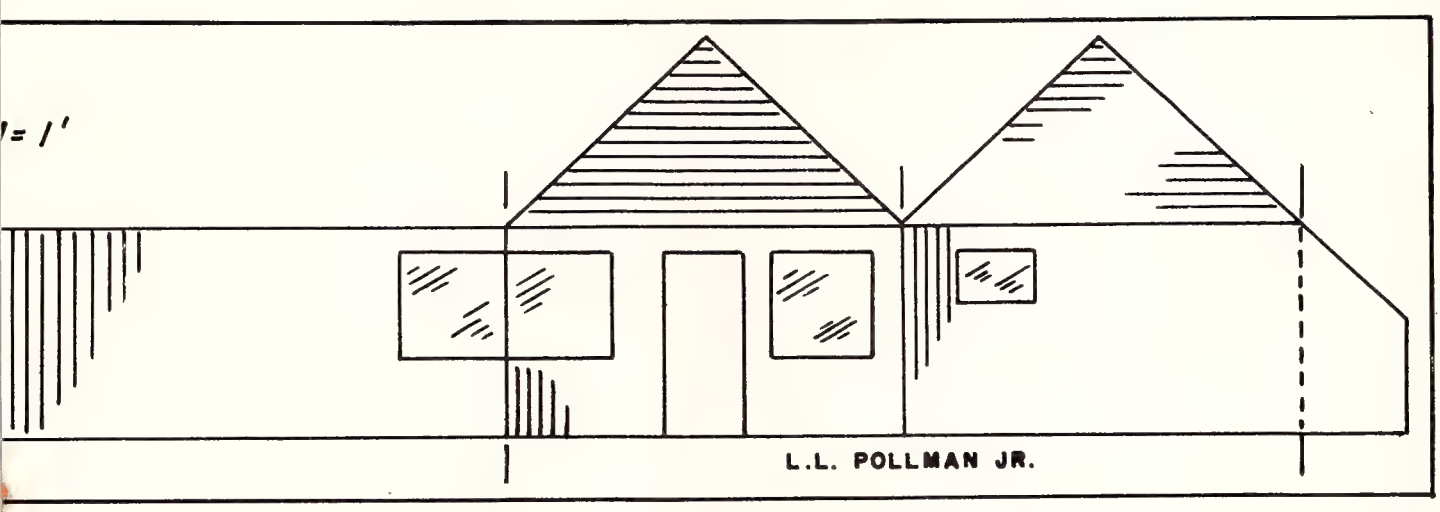






The house above may be built from either cardstock or precision cut wood siding. All parts are shown full size for HO gauge except floor plan, below right.

Few model railroads have enough housing for either the needs of the population served by the layout or for realism. Several houses of the type shown here will fit into very small space; will give layout busier atmosphere.



HALF way around the world is the distance that the HO gauge California Pacific Railroad of Louie Pollman, of Vacaville, California, has travelled. The layout is small but hardly miniature; its 4'0" x 8' length allowing plenty of good railroading fun. More than that it allows for a substantial amount of scenery which is builder Pollman's first interest.

Minimum radius is still a good 20" on the line following the creek but all other curves are 22". Pre-fab track has been used on the railroad but switches have been built by hand on curves, ala Bill Schopp. They work fine but admittedly are somewhat harder to get going.

The line itself is simple, being a loop which flips back over itself at a height of 3". Assorted industries provide revenue and switching activity at varied points on the line.

Most of the structures are home built and plans for one of the small houses found on the California Pacific is to be found on these pages. Constructional details will be found at the end of this article. The engine terminal is small but adequate for a layout of this size. The two track engine house opens onto a 9" gallows type turntable.

Since the builder is still in service, the California Pacific had to be made portable and it can fold up into a box measuring only 4'6" x 18". In this manner the railroad has already travelled to the far east. A skillful eye can detect a Japanese influence in the constructional details found in the scratch built 2-8-4, which is the pride of the line. This engine was built by Louie using raw materials, except for the motor, drivers, tender trucks, and couplers. It was built under the guidance of a skilled Japanese craftsman. Unfortunately, the berkshire won't take anything less than a 24" radius curve and the maximum on the CalPac is 22" so that its operation is limited to short test runs only.

Building the House

The house shown in the photo on the opposite page is a small structure such as you might find anywhere in the countryside, very possibly adjacent to a railroad right-of-way. Construction is relatively simple and several of these structures could be completed in an evening, perhaps varying some of the details so that no two are exactly alike.

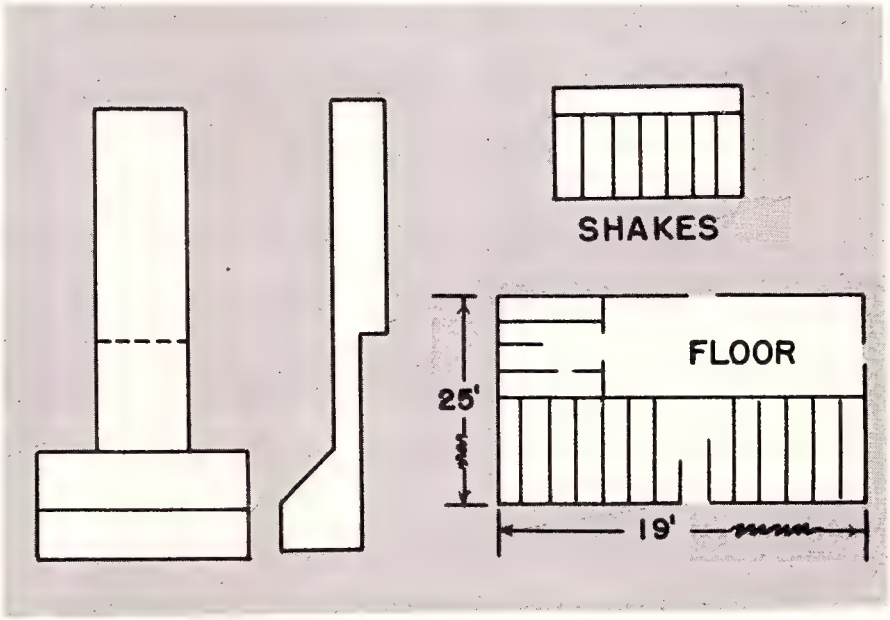
1/16" Crescent illustration board was used for the walls, along with filing stock for the roof and shingles. Layout the sides as shown in the drawing (Double all dimensions for O gauge). Cut out the window and door openings with an X-acto knife and take care not to run over the frame corners. If your X-acto knife blade is dull, replace it with a new sharp blade. Use an HO scale rule to mark off 6" vertical sections with the exception of the front and back peaked portion, which are scribed horizontally as shown. When the scribing is completed, cut the walls apart. Make your cuts on a hard surface to insure clean cuts.

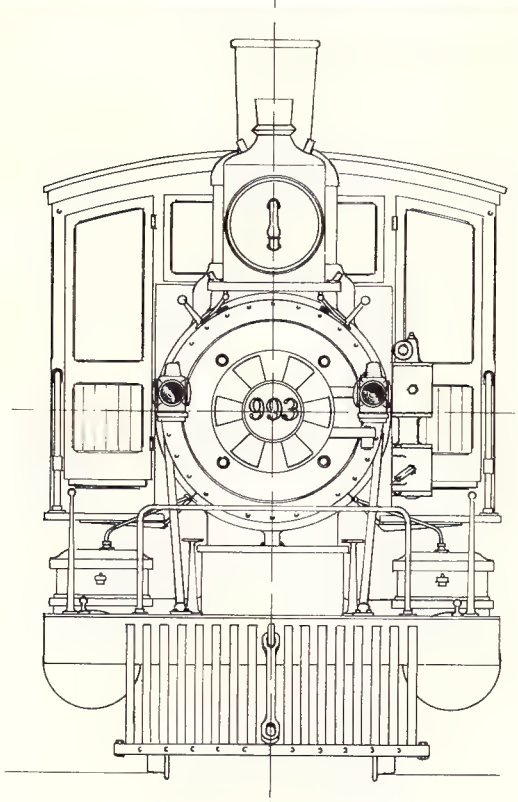
Water colors are used to paint the walls, both inside and out. Water colors won't stick to glued surfaces which is why we paint the part now. Note how the various walls of the building are set in relation to one another and cement in place, being sure that all corners are square. Now take another piece of illustration board and use it for the base of your model as shown in the reduced floor view below. The scribing should represent 12" planks. The floor should be painted a wooden or painted color.

Windows are cut from acetate sheet (old film is good), cut somewhat larger than the size of the window opening. Cement to the inside of the building. Any of several type window frames can be modeled but we'd suggest a simple one as might be found in a cheaper type structure such as this.

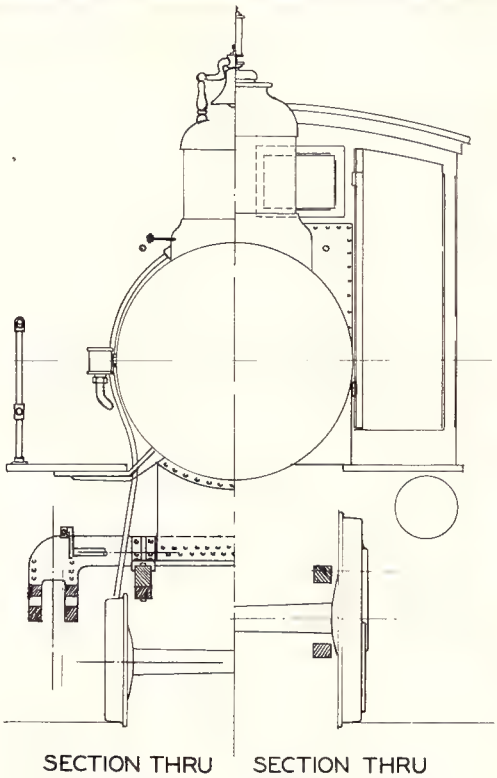
The fireplace is made of scrap wood scribed and painted to represent either brick or stone. It could also be covered with building paper. Now trace the roof pattern as shown. The roof may be covered with a fine sandpaper for a quick job or it can be made up painstakingly by the shake method which adds greatly to the overall appearance. Putting those shingles on takes somewhat longer but the comments will be worth the aded effort.

The porch railing is about 3 scale feet high and extends from the storage area behind the fireplace to the hight front corner of the structure.





FRONT ELEVATION

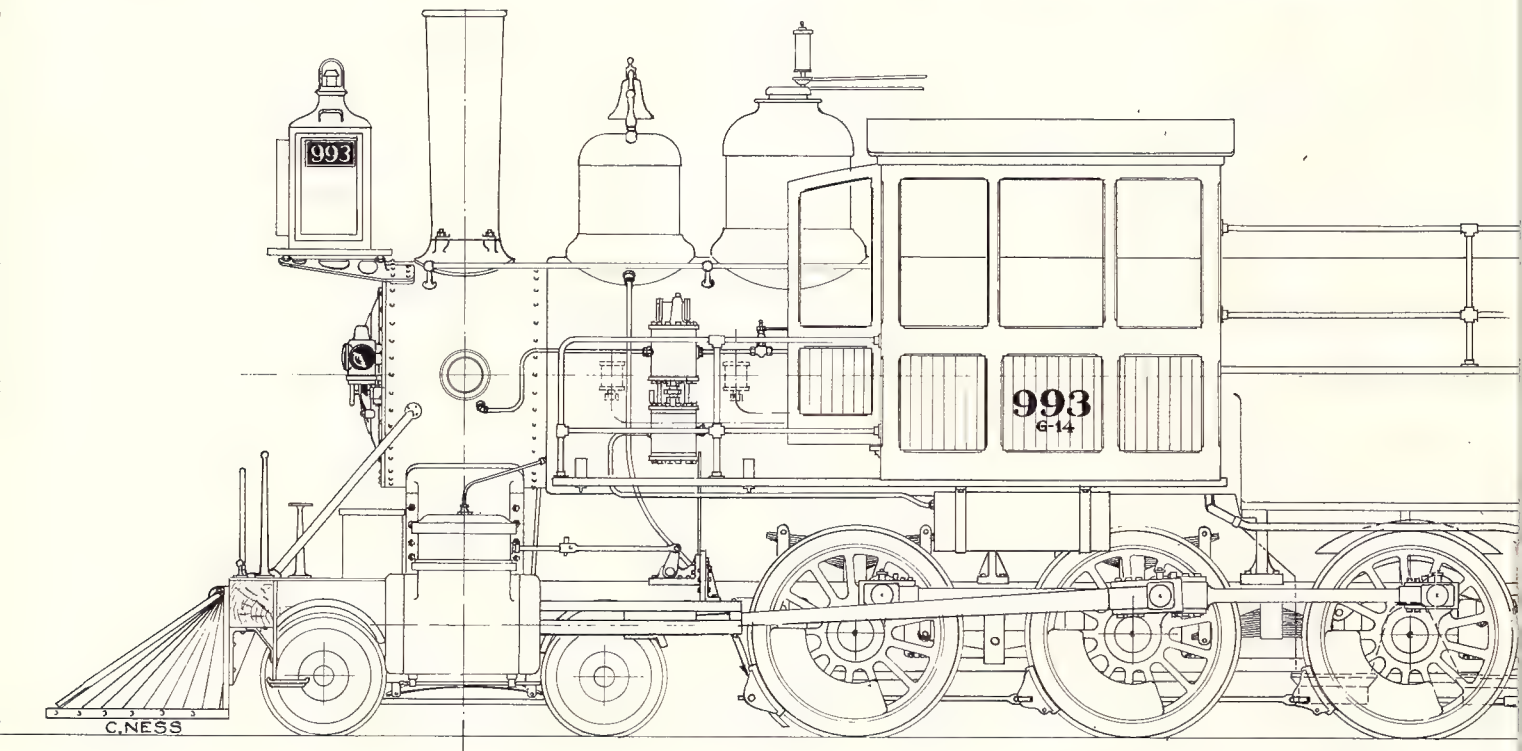


SECTION THRU SAND DOME RIGHT SIDE

SECTION THRU STEAM DOME LEFT SIDE

The hefty lines of this old pig re
the glamour found in railroads a
of the century. Engines of this t
be out of place against the sleek
and would create a contrast al

ERIE & WYOMING VALLEY RR



ERIE & WYOMI

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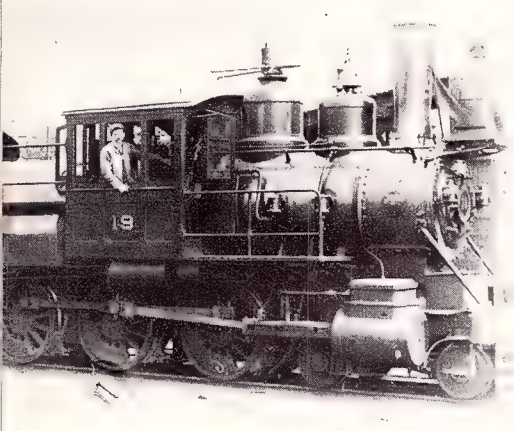
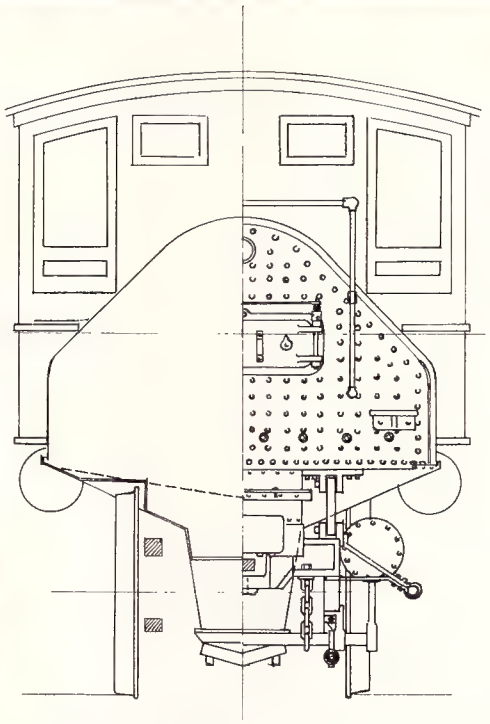
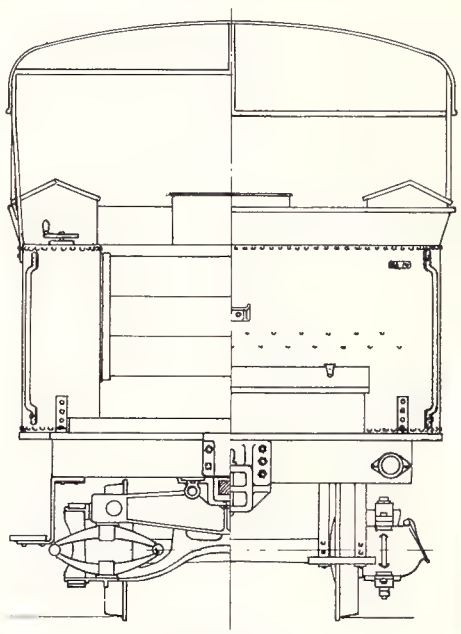


photo from Walter Lucas Collection



SECTION THRU REAR DRIVER LEFT SIDE

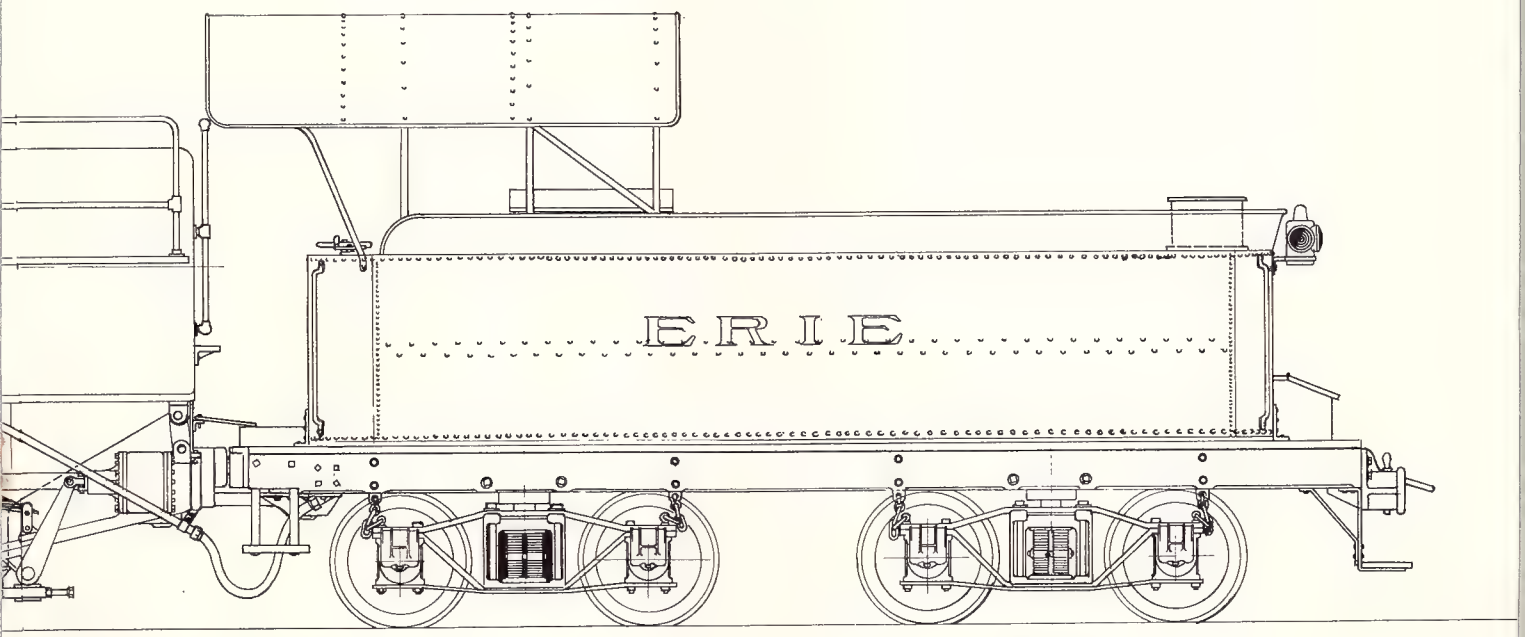
REAR ELEVATION



TENDER

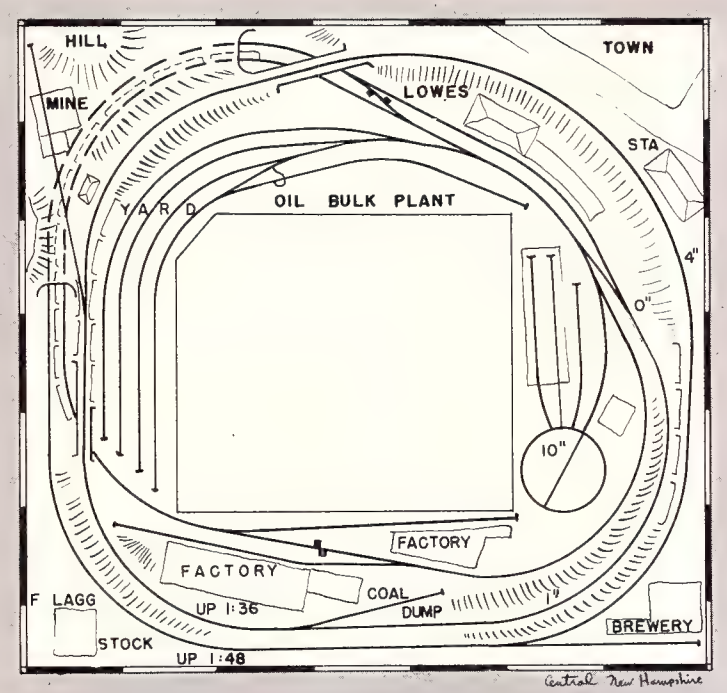
FRONT REAR

This Baldwin built (4-6-0) ten wheeler locomotive, while turned out in 1886, has lines that are classic enough so that it closely resembles locomotives built at the turn of the century. It and its eleven identical sisters served the Erie & Wyoming Valley Railroad, bearing numbers 8 through 19. When the Erie Railroad took control of the E&WV on Jan. 10, 1901, they were renumbered from 988 through 999 and served elsewhere on the Erie than on the old route between Pittston and Hawley, Pa. At the time they were built, the E&WV was only two years old. The 51" drivers marked this girl for coal haulage on the heavy grades of the Moosic Mountains between Dunmore and Hanley. The engine had 18" x 24" cylinders and weighed 99, 100 lbs. Some of the locomotives in this class had a small shed built over the coal deck.



NG VALLEY

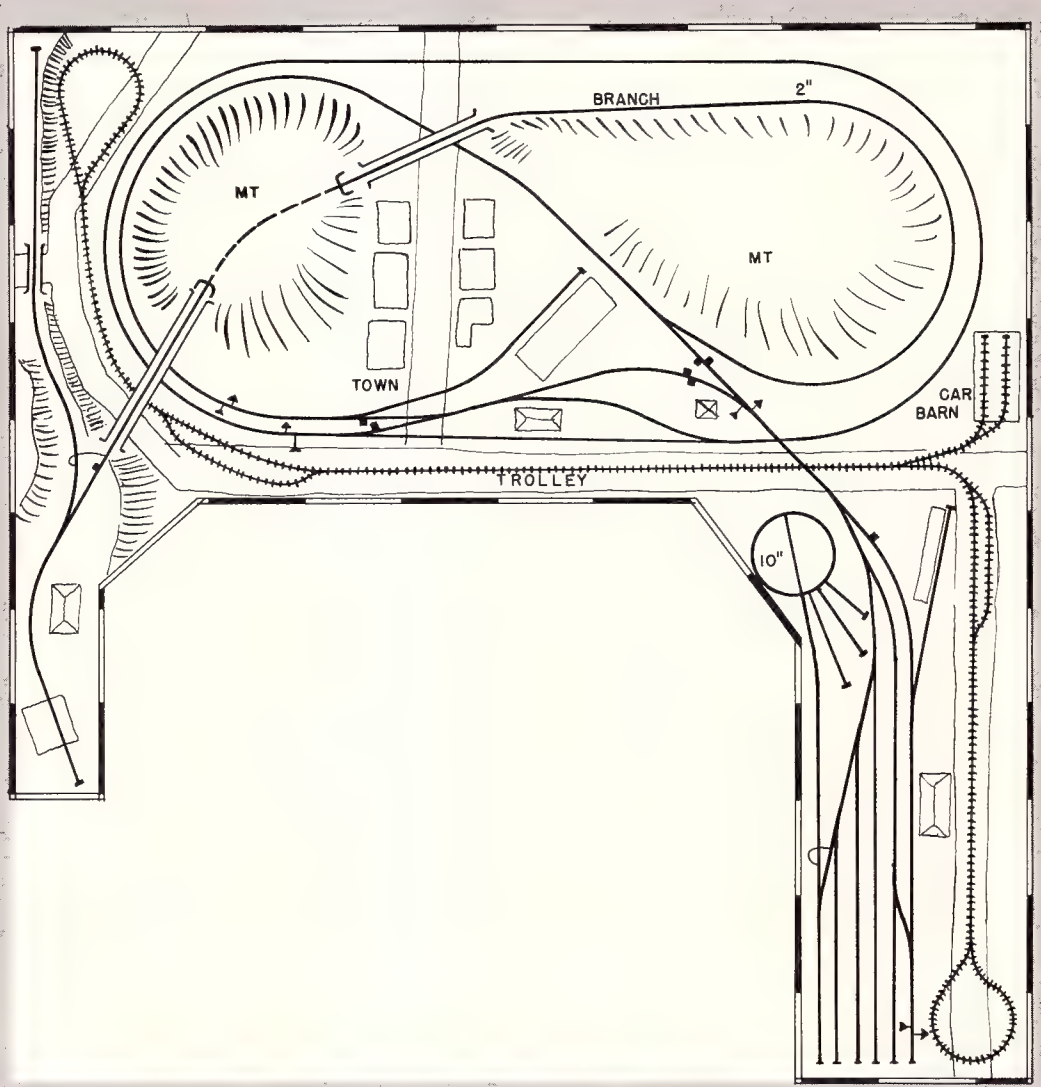
SCALE



SMALL AND MEDIUM SIZE LAYOUT DESIGNS WHICH HAVE APPEARED IN RAILROAD MODEL CRAFTSMAN

Jan. 1952 Two 5x9′ loop designs
Feb. 1952 2x7′ ferry terminal layout
3-5 1950 RMC Layout No. 1 4x6′ 2-track
May 1951 RMC Layout No. 2 4x6′ long run
April 1952 RMC Layout No. 3 5x9′ 3 level
May 1952 Some simple layouts
Dec. 1952 Two designs, 4x6′ and 5x9′
Jan. 1953 Seven narrow layouts
June 1953 Reducing layout designs
July 1953 Some 4x8′ pikes

CENTRAL NEW HAMPSHIRE RR



CARLTON & RAVENDALE RAILROAD

SMALL LAYOUTS

by the Layout Doctor

We all dream of building and operating gigantic super layouts. We'd be much better off building on a smaller scale, at least in the beginning, with layouts such as the Layout Doc has prepared.

SOME fellows will be satisfied with a small model railroad, others will not and never will be. You get involved in rather sharp curves and steep grades or else a lack of trackage besides the oval main line. Your trains have to be short and when you get that articulated it just doesn't look right. Some fellows won't accept a small railroad even as a stopgrap until the day they can spread an empire over the whole basement. Withal, a small railroad permits many a dweller in limited spatial circumstances to *run* a model railroad long before that ever receding day when he finally gets enough room. Herewith are presented several plans for small railroads in addition to those listed on the box on this page as having previously been published in RMC. It is possible to build smaller railroads, but some ingenious design, clever workmanship, sacrifice of some of the usual conditions (such as use of commercially available switches), or a slight retreat from reality is necessary.

Linden Industrial Railroad

The Linden Industrial Railroad is a design to fit on a standard 4 x 8 panel of Homosote (with bracing) or plywood. There is an oval main line on the basic level, with 20" radius curves. There is a separate yard lead and a small yard with No. 4 switches (as are all) jammed in at a minimum distance of 7" apart. Then there is a branch line taking off at front left and climbing up to a 4" elevation at front right where it crosses the main and the yard lead to serve an industrial area. The fun on such a road as this once the scenery is done will be in sorting freight cars around from yard to factory and factory to yard. The connection to another railroad is via the interchange siding at front left, which could well curve off down the wall or run somewhere out of sight if space permitted.

Carlton & Ravendale RR.

The Carlton & Ravendale R.R. is an HO line on a basic panel measuring five by ten and a half feet. Actually if the street and car line were omitted for the time being, the width could be reduced to four and a half feet. On this table there is a main line with 24" radius curves, a few spur tracks, and the beginnings of a branch line. To start with you need only put in your race track, plus the two No. 4 switches and the insulated (Atlas) 45° crossing at the left in order to get operating.

Then there would come an addition at the right, measuring as drawn about 2'3" x 6'0". On this there is a small passenger terminal, a small freight yard, and a 10" turntable with a few open engine stalls—more could be added by running into the open space. The rear of this narrow table along the wall is reserved for scenery, a street with car line, and the false fronts of some buildings. If more yard space were needed some day, this extra width would permit about five more storage tracks.

The second addition would be a narow 1'0" x 3'0" table at left on which the branch line would terminate at a mine, with a switchback swinging back to another mine. Lots of fun could be had on this line by bringing down loads from the mine to the yard, then taking them out on the main line with another engine. Finally they would be brought back, presumably now empty, classified in the yard, and pushed or pulled back up to the mines again The exit from the yards is so arranged that you can head out on the main in either direction and return from either direction. This is accomplished by a sort of reverse loop which really serves as a wye with all switches comfortably up front.

Want to add a trolley line? It can be done on this railroad, a single track line with one or two passing sidings. It would start at a 6" radius reverse loop at upper left, come down along the front, cross the yard lead on another 45° crossing ("Conductor must precede all cars across railroad crossings on foot carrying lighted lantern by night, red flag by day"), then run down along the yard to another tight reverse loop. Funny

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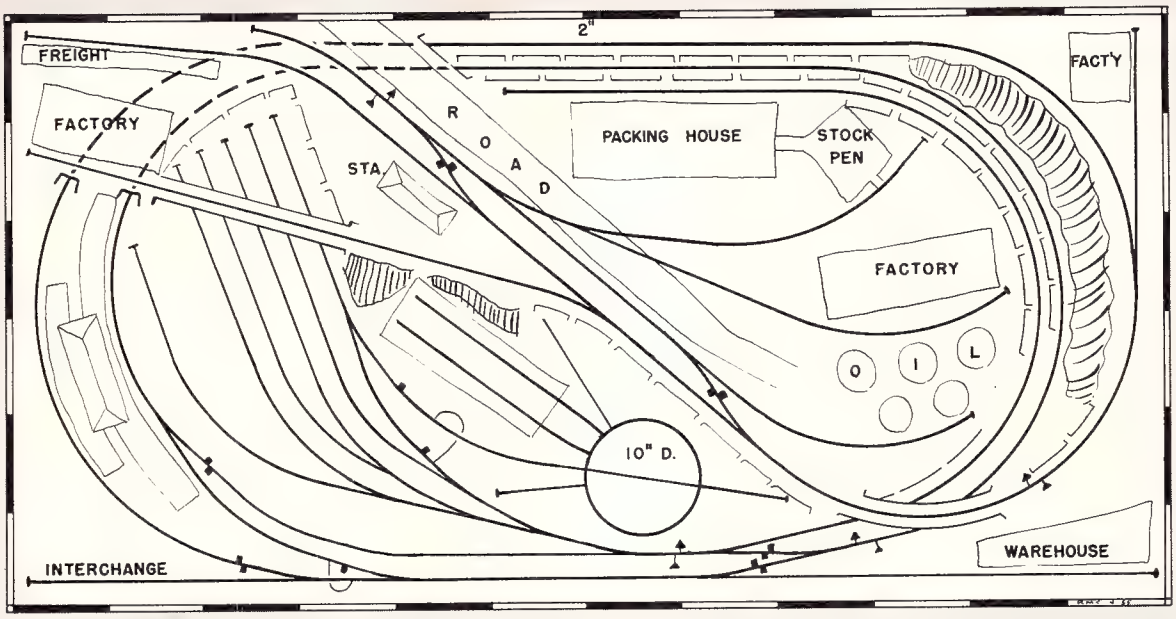
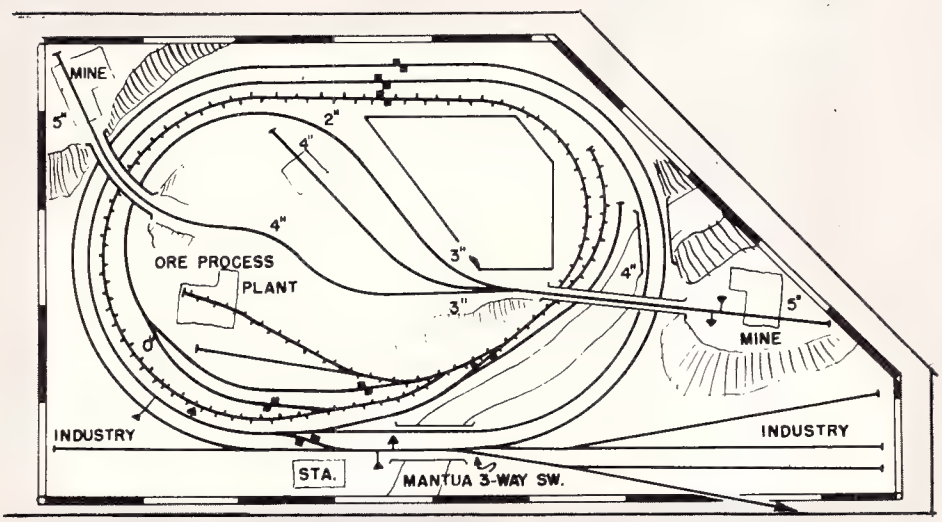


LINDEN INDUSTRIAL RAILROAD

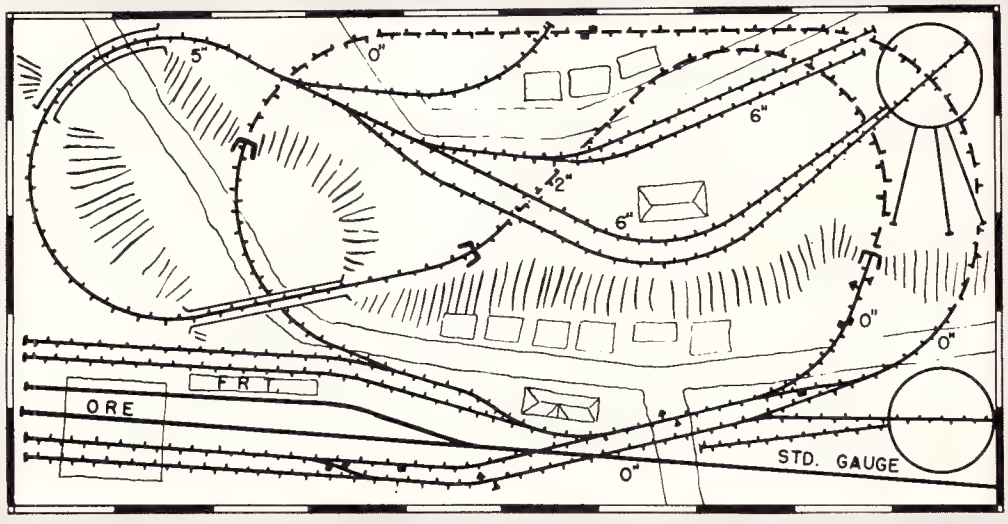
Plenty of railroading is packed into the 4x8' Linden Industrial Railroad. Passenger service on a pike like this would at best be meager, perhaps a small gas electric or one old coach hauled by a small switcher. Scenery possibilities are almost unlimited.



BOOTHWYN COAL RAILROAD

The Boothwyn line packs a real wallop in little space, having a double track main line, a narrow gauge loop, plus a standard gauge branch and sidings. A real railroad in the space most of us would just throw in a test track.

Here's a nifty 40" x 80" HOn3 layout that demonstrates how much less space the narrow gauge trains really need to strut their stuff. Note HO track.



LEADVILLE & TORRANCE RR

SMALL LAYOUTS

(from pg. 37)

thing, when you add a trolley line it often attracts more attention than the whole durned rest of the railroad together!

Central New Hampshire RR.

The Central New Hampshire is for inside operation in a space 7'0" x 6'6" which means that it would fit in a tiny room with entrance by ducking under. On the basic level there is a yard lead oval, a small yard curving around a corner, and a 10" turntable (Parnell) with parallel track engine house. This is connected to the single track main line by a pair of No. 4 crossovers, only *one* of the crossovers is not standard, consisting of one right- and one left-hand switch (All switches are No. 4). The main line itself is plain old single track climbing up to cross over itself and drop down again. The minimum curve is 22" radius except in the yards while the ruling grade one way is 3% (1 in 36), the other way 2% (1 in 48).

Boothwyn Coal Railroad

The Boothwyn Coal Railroad has lots of opportunity for running trains, what with a double tracked main line, a narrow gauge oval, and a standard gauge branch. It fits in a wedge shaped space similar to many found in homes, maximum width 4'6", maximum length 8'9", and an effective length of about six feet. A double tracked main line, though hardly appropriate for a railroad this small will give an opportunity for running two trains at once, and just letting them run. Inside this double track is an oval of narrow gauge (HOn3) trackage with just a little dual gauge track. A standard gauge branch line climbs up a steep 4% (1:24) grade around 16" radius curves to get to a switch-back and a couple of mines which provide revenue for the road. (The branch could of course be made narrow gauge).

Contrary to what you might think and what Glyn Lewis would like to have you believe, you cannot necessarily get a smaller layout in a given area using TT gauge than with HO. You *should* be able to, since any given HO plan can be placed in about 1/5 less space (linear measurements) when converted to TT gauge. And of course a 40' box car is shorter in TT gauge than in HO gauge. As I see it, and this will bring a barrage of mail, TT gauge is missing the boat for one big reason: the lack of a suitable flexible ready-laid track using a suitably small section of rail such as the Code No. 70 and having suitably sharp switches (such as No. 3 and No. 4). If you don't mind laying your own TT track, you can get a smaller layout than if you use commercial trackage parts, which is true in any gauge including HO narrow gauge (HOn3).

Leadville & Torrance RR.

The Leadville & Torrance is a 3'4" x 6'8" HOn3 railroad intended to use home-built trackage. It is a plain little mining road bringing ore down from a mine to a processing plant where it is processed.

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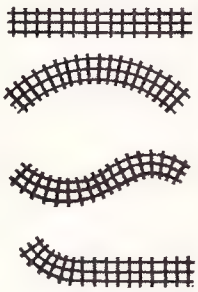

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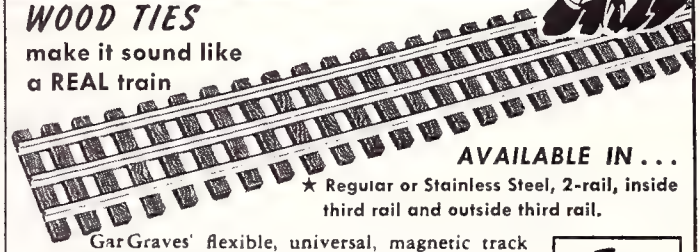

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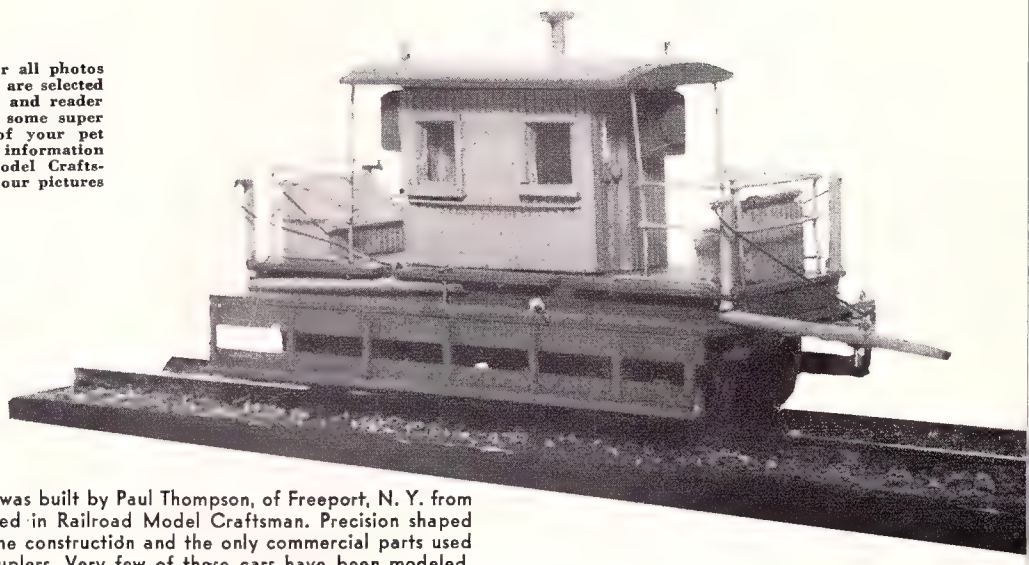
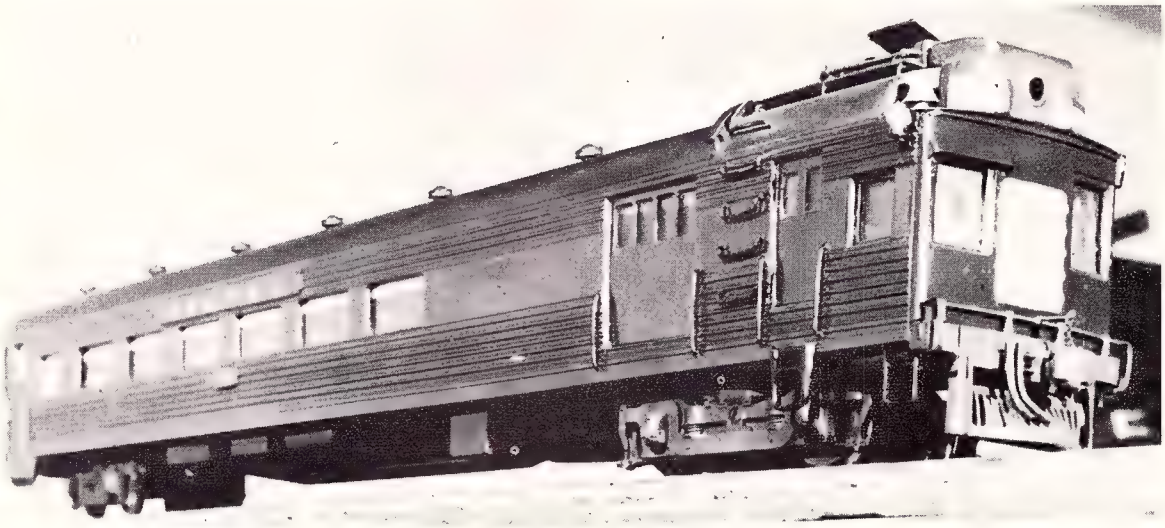
The Montreal HO Association of Model Railroaders operated this version of RMC Layout No 1 at the recent show of the Foremen's Club in the Montreal Show Mart. You certainly couldn't ask for much more in a layout of this size. Modelers in the photo are Roy Dohn, John Pollard, and Marcel Marchand, who owns the pike. The Association handed out flyers to spectators which were printed in two languages, English and French!

One of the most unusual diesel models to come our way in a long while in this attractive Baldwin Centipede with a 4-8-8-4 wheel arrangement. Built in HO by George T. Perrine, of Mountain Lake Park, Md., the model is powered with four small Lindsay motors each driving one axle. The model was scaled down to 84', the prototype being 91' long; still quite a big engine for 24" curves. Superstructure was built by Bernard Gonder who used tin can stock, scrap brass, and wire shaped on a wooden form.

A minimum of $5.00 is paid for all photos appearing in this section. Photos are selected on a basis of good photography and reader interest; you are not limited to some super detailed model! Send photos of your pet projects together with building information to: Picture Editor, Railroad Model Craftsman, Ramsey, New Jersey. Mail your pictures today.

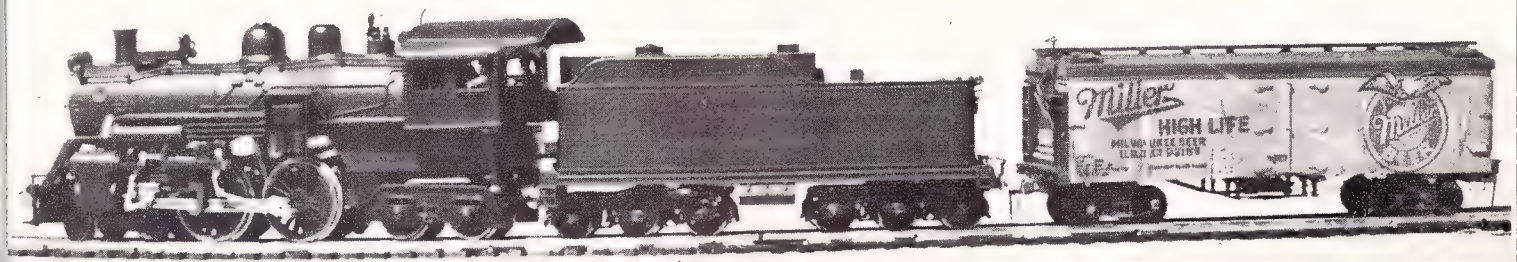


The HO poling car was built by Paul Thompson, of Freeport, N. Y. from plans which appeared in Railroad Model Craftsman. Precision shaped wood was used in the construction and the only commercial parts used were trucks and couplers. Very few of these cars have been modeled.



Another Canadian model with plenty of merit is this attractive O gauge gas-electric, modeled along free-lance lines. We don't ever recall having seen a doodlebug with fluted sides since corrugated sides came into general use after the heyday of the gas-electric. Such a unit might possibly have been built, however, and would have resembled this. Builder unknown but photo from St. Clair Hobby Supplies in Toronto.

S. Sgt. William F. Beasley, MCRD, San Diego, Calif., converted this MDC Atlantic into an attractive Jubilee 4-4-4 by adding a Bowser 4-wheel trailing truck, Warren whistle and bell, Kemtron 6-wheel Commonwealth tender trucks and other details. The reefer is Central Valley repainted and lettered with Walthers private owner refrigerator decalcomanias.



NABOR'S PIKE

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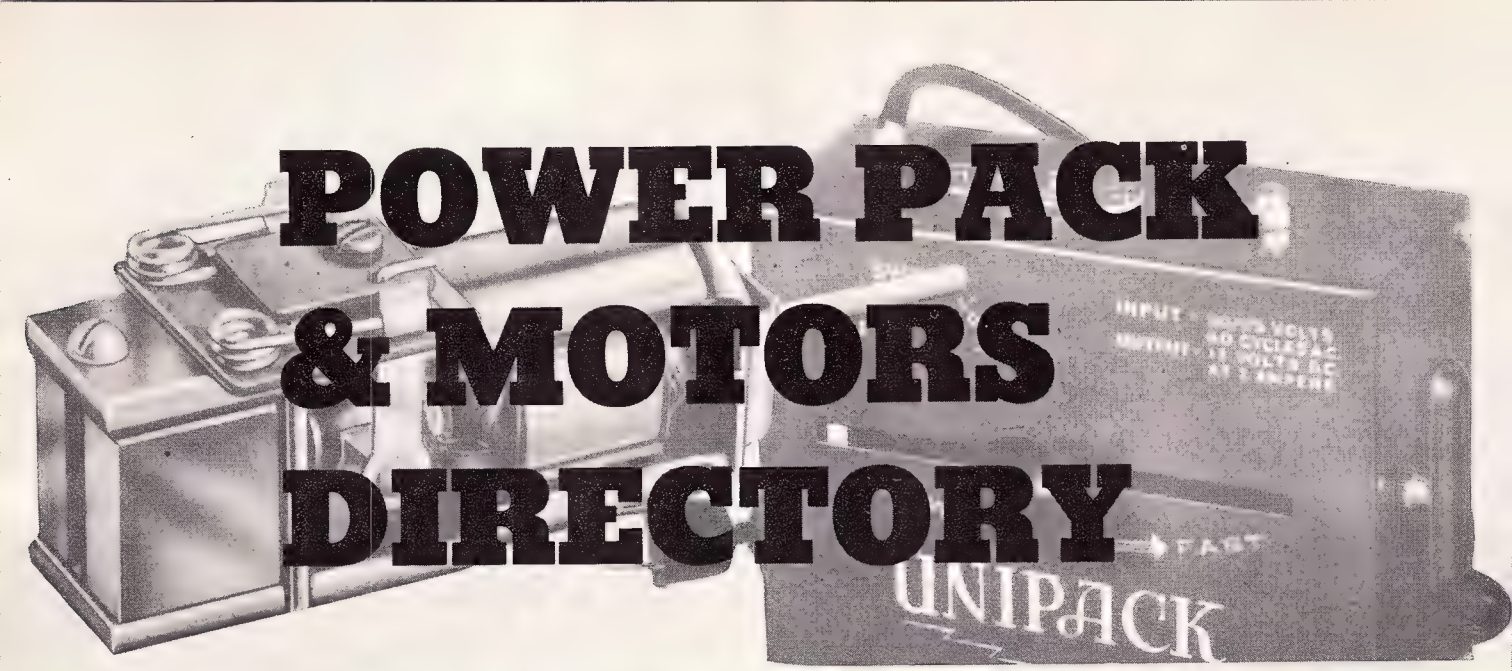


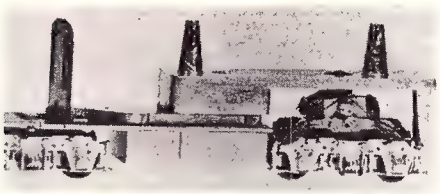
TO THE READER: This listing included all known domestic motors and power packs as have found general use in model railroading. Only models known to be in manufacture or which are readily available have been included. Data on certain foreign makes were not available at press time and so have been omitted although they are finding use on American NMRA standard model railroads. The motors listed here in have almost all been designed especially for model railroad use or have been used extensively by model railroad builders with success.

Direct current (DC) motors should never be operated on alternating current since the pulsations will quickly cause the motors to burn out. AC motors may be used on DC but require a special means of reversing. DC motors may be reversed by simply reversing the polarity of the current. Do not operate these motors higher than their recomended voltage.

All power packs listed bear the Underwriter's Laboratory seal and are perfectly safe to operate. Needless to say they should not be tampered with and should be repaired only by a competant electrician. We strongly recommend the use of a circuit breaker on every power pack (and transformer) and if possible, the use of a red "on" light.

This Directory was compiled by the editors of Railroad Model Craftsman who relied upon the information supplied and checked by the manufacturers and distributors of the material listed. All data as of Feb. 15, 1955. All manufacturers were invited to submit their material for free listing. This magazine can assume no reponsibility for the correctnes or completeness of this Directory. Further information regarding any of these products may be obtained by writing the manufacturer or distributor or by visiting your favorite model railroad shop.

MOTORS



LINDSAY L-1180 GLOBE POWER TRUCK

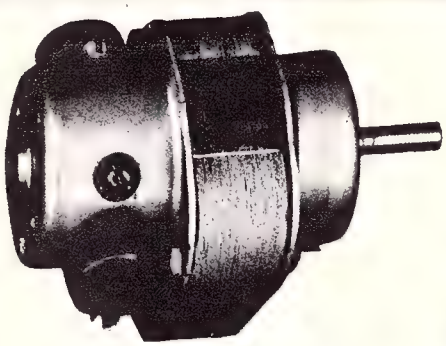
Designed for use in Globe F-7 plastic diesel. Permag motor, 7 pole skewed slots, oilless bearings. Price $9.95.

LINDSAY GHOST L-670 TRUCK

Permag motor, 7 pole armature with skewed slots, oilless bearings. Mounted in Silver Streak freight truck. Used as booster power or as power for tiny dummy locomotives. 5' wheelbase. Price $11.50.

LINDSAY RDC POWER TRUCK

L-840 power truck is replacement for Athearn RDC power truck. Price $12.95. Motor less truck also available separately. Mfd. by Lindsay Products Co., 5645 Selmarine Drive, Culver City, Calif.



LOBAUGH No. 1, O GAUGE

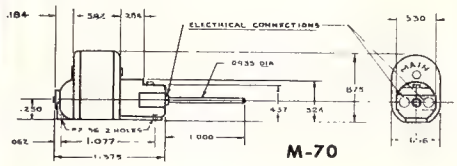
O gauge universal type, 16 volts AC or 12 volts DC. Nine pole armature. Length less shaft 2⅛", width 2", height 2⅛". Amperage 1.8. Price $10.75

LOBAUGH No. 2, O GAUGE

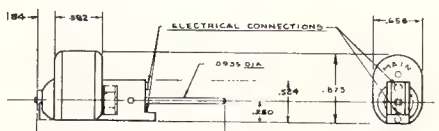
O gauge universal type, 16 volts AC or 12 volts DC. Nine pole armature. Length less shaft 2⅝", width 2", height 2⅛". Draws 3.0 amps. Price $11.00.

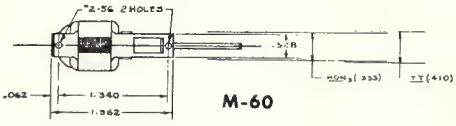
LOBAUGH No. 3, O GAUGE

O gauge universal type, 16 volts AC or 12 volts DC. Nine pole armature. Length less shaft 3⅛", width 2", height 2⅛". Draws 4.0 amps. Price $11.25. Mfd. by Rollin J. Lobaugh, 930 Linden Ave., South San Francisco, Calif.



M-70





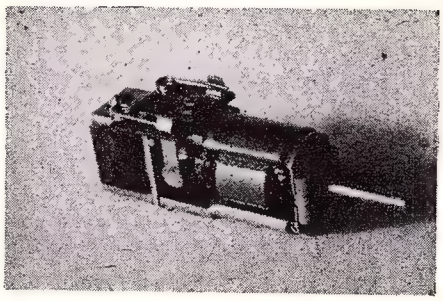
M-60

MAIN MOTORS, PER-MAG TYPE

M-60 and M-70 models, permanent magnet type suitable for small large gauge units and especially for use in extremely narrow models, such as HOn3 and TT, because of narrow base. Brushes and brush pressure springs are entirely enclosed. 12 volts DC, 10,000 RPM no load. 7 pole armature. Alnico 5A field assembly. One year warranty. Mfgd. by Pacific Design & Development Co. for Major Electronics, distributors, 208 Standard St., El Segundo, Calif.

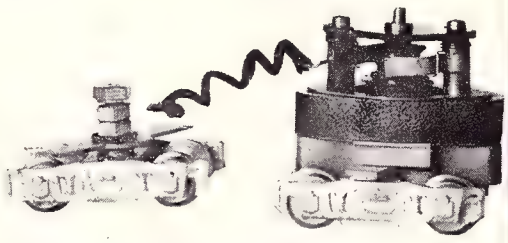
MANTUA PERMAG MOTORS

HO gauge Mantua PM-1 motor shown in diagram has been redesigned, although essential dimensions have not been changed so that the new motor may be used as a replacement in older Mantua locomotives. Price $. Mfd. by Mantua Metals Products Co., Woodbury Heights, N. J.



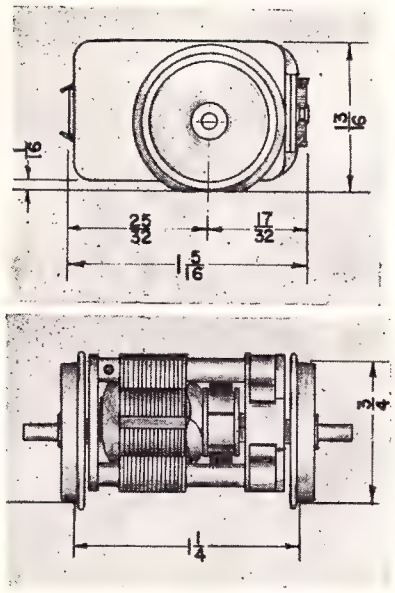
MODEL PIKE DC-60 PERMAG MOTOR

HO Permanent magnet design measures 1⅞" in length 6/8" in width, and ⅞" in height. Note that this motor does not have the same measurements as the Pittman DC-60 although the design is similar. Mfgd. by Model Pike Products, New York City, N. Y. Model Pike also offers two accessory motors for model railroad use but these are too light in construction for use in powering locomotives or cars; find their greatest use in powering cranes, turntables, etc.



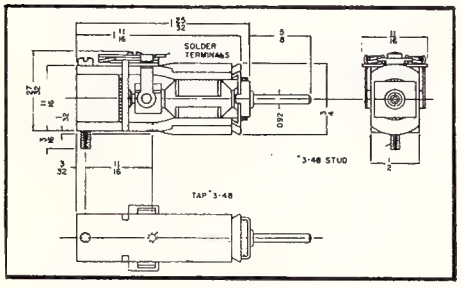
PSM HO GAUGE POWER TRUCK

Power truck as used in PCC, Indiana lightweight, Brill old time cars. Available separately with trailing truck, commonwealth side frames, but without floor. Also available with floors for each of the three prototypes, prices available from the manufacturer. These trucks have a vertically mounted armature, 5 slot silicon laminated type ⅝" diameter, oil impregnated phosphor bronze bearings, steel worm with five phosphor bronze gears. Width ⅞", length 1⅜". Height to top of motor shaft 1⅜". Price of motor unit, trailing truck, and side frames, $$11.95. Available from Pennsylvania Scale Models, 14 S. Centre St., Pottsville, Pa.



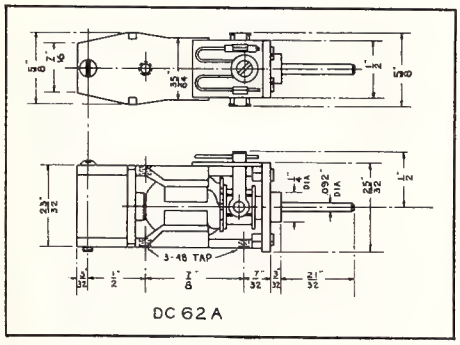
MULTI UNIT UNDER-FLOOR MOTOR

O gauge wound field motor developed especially for use under the floor of O gauge traction or other self powered units. Universal AC-DC design with five pole armature. Available in various combinations for single or double truck cars so that it is possible to have either one or as many as four motors on a double truck traction car. Motor mounts inside frame of trucks permitting car to take curves of as little as 8" radius. Dimensions are given in drawing. Contact manufacturer or your dealer for price schedule. Mfgd. by Multi-Unit, PO Box 440, New Haven 2, Conn.



PITTMAN DC-60 MOTOR

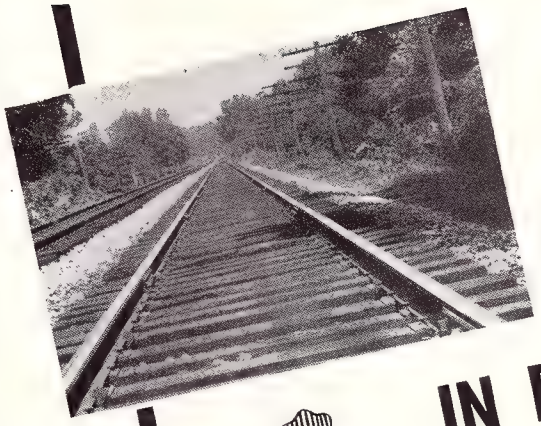
HO permanent magnet design. No load speed 15,000 RPM. No load current at 12v DC .3 amps, 10,000 RPM recommended operating speed develops .002 hp., .6 amps. Safe operating current. .8 amps. 5 poles, .092 shaft. Price $5.00



PITTMAN DC-62A MOTOR

HO permag design 12,500 RPM no load speed, .25 no load current at 12v DC. 9000 RPM recommended operating speed produces .002 hp. at .6 amps. Safe operating current .8 amps. 5 poles, .092 shaft. Price $4.50. This motor normally sold to manufacturers only but is available as a replacement.

Continued on page **44**



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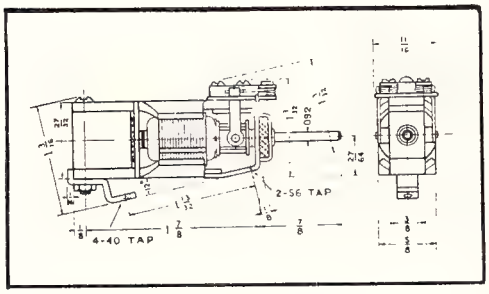
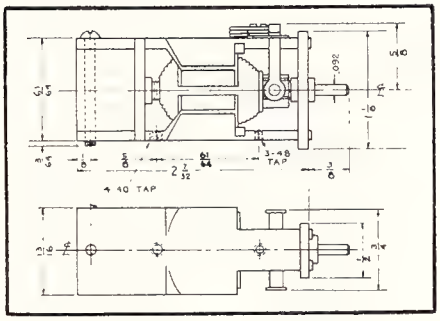


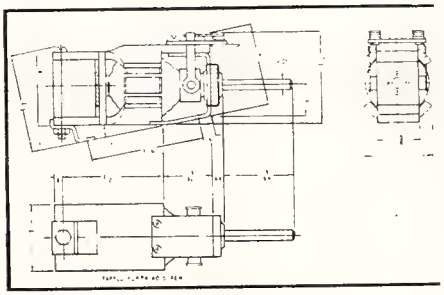
PITTMAN DC-71A MOTOR

Permanent magnet design. 13,000 RPM no load speed draws .3 amps at 12v DC. 9,500 RPM recommended operating speed produces .004 hp. Draws .8 amps at recommended operating speed. Safe operating current 1.0 amps. 5 ole armature with .092 shaft. Price $6.50.



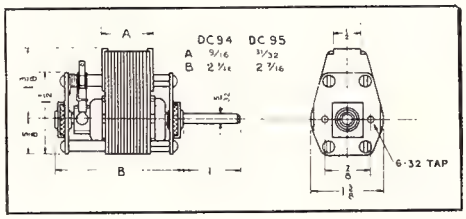
PITTMAN DC-80 MOTOR

Permag design, 10,000 RPM no load speed draws .2 amps at 12v. DC. Recommended operating speed 7,000 RPM produces .005 hp. Draws .85 amps at recommended speed, maximum safe operating current 1.2 amps. 5 pole armature with .092 shaft. Price $6.00.



PITTMAN DC-91 MOTOR

Permag design, 8,500 RPM no load speed draws .45 amps at 12v DC. Recommended operating speed 6,000 RPM produces .009 hp. Draws 1.3 amps at recommended operating speed, maximum safe operating current 1.75 amps. 7 pole armature, 5/32" shaft. Price $8.00.

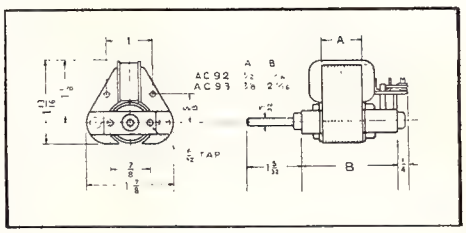


PITTMAN DC-94 MOTOR

Permag design, 7,500 RPM no load speed draws .52 amps at 12v DC. Recommended operating speed 5,700 RPM produces .009 hp. Draws 1.2 amps at recommended operating speed, maximum safe operating current 1.75 amps. 7 pole armature, 5/32" shaft. rice $7.50.

PITTMAN DC-95 MOTOR

Permag design, 7,000 RPM no load speed draws .55 amps at 12v DC. Recommended operating speed 5,500 RPM produces .015 hp. Draws 2.0 amps at recommended operating speed, maximum safe operating current 2.75 amps. 7 pole armature, 5/32" shaft. Price $8.50.

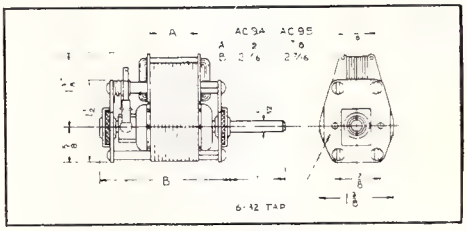


PITTMAN AC-92 MOTOR

Wound field AC-DC universal design. 11,000 RPM no load speed, 1.00 amps no load current at 12v DC. Recommended operating speed 6,400 RPM produces .009 hp at 1.75 amps. Maximum safe operating current 2.0 amps. 7 pole armature, 5/32" shaft. Price $7.00.

PITTMAN AC-93 MOTOR

Wound field AC-DC design universal motor. 12,000 RPM no load speed, 1.0 amps no load current at 12v DC. Recommended operating speed 6,000 RPM produces .014 hp at 2.0 amps. Maximum safe operating current 3.0 amps. 7 pole armature, 5/32" shaft. Price $8.00.



PITTMAN AC-94 MOTOR

Wound field AC-DC universal motor. 10,000 RPM no load speed, 1.0 amps no load current at 12v DC. Recommended operating speed 7,500 RPM produces .0075 hp. at 1.7 amps. Maximum safe operating current 2.0 amps. 7 pole armature, 5/32" shaft. Price $7.00.

PITTMAN AC-95 MOTOR

Wound field AC-DC universal motor. 13,000 RPM no load speed, 1.0 amps no load current at 12v DC. Recommended operating speed 8,000 RPM produces .016 horsepower at 2.2 amps. Maximum safe operating current 3.0 amps. 7 pole armature, 5/32" shaft. Price $8.00.

PITTMAN DC-702 MOTOR

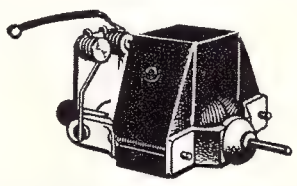
Permag HO design used in Athearn RDC and similar power trucks. Has about ½ the power output of a DC-60 motor, other characteristics being similar.

PITTMAN POWER TRUCKS

O gauge permag and wound field types, for traction and light diesel use. Write for manufacturers literature. Mfd. by Pittman Electrical Developments Co., Sellersville, Pa.

VARNEY SCALE MODELS

HO gauge DC-70 Varney motor. Permanent magnet type. Width ¾", height 1", Length 1⅞"; .092 shaft extends ¾". Made exclusively by Pittman Electrical Developments Co. for Varney Scale Models, 4401 Ponce de Leon Blvd., Coral Gables 46, Florida.



BOWSER PERMAG MOTORS

HO gauge permanent magnet motors having basic dimensions as per sketch. Also available with double ended shaft. Price. $8.50. (Data not furnished by manufacturer). Mfgd. by Bowser Mfg. Co., Redlands, Calif.

K & D AC-DC No. 1 MOTOR

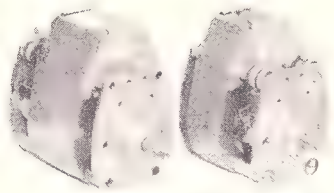
O gauge universal type, 18 volts AC or 12 volts DC. 7 pole armature. Length 2½", height 2", width 1-7/16" Amperage 2.0. Price $5.00.

K & D AC-DC No. 2 MOTOR

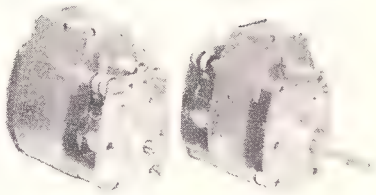
O gauge universal type, 18 volts AC or 12 volts DC. 7 pole armature. Length 2½", height 2", width 2-1/32". Amperage 2.8. Price $7.00

K & D AC-DC No. 3 MOTOR

O gauge universal type, 18 volts AC or 12 volts DC. 7 pole armature. Length 2-13/16", height 2", width 2-1/32". Amperage 4.0. Price $9.00. Mfgd. by Kendrick & Davis, Lebanon, N. H.



FRONT and BACK
1" - 5-8" Single Shaft



BACK and FRONT
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ALL-NATION O GAUGE MOTORS

O gauge motors (may be suitable for some S gauge locomotives) with seven pole motor, over sized lubrication cups, stabilized brushes. Laminations in two thicknesses, ⅝" and 1" Complete brush assembly and front bearing may be removed without danger of misaligning field.

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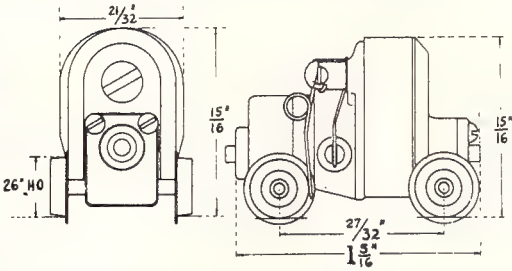
Cat. 1414	Stack ⅝" DC, double shaft	price $7.75
Cat. 1415	Stack ⅝" AC-DC, double shaft	price $6.50
Cat. 1416	Stack ⅝" DC, double shaft	price $7.75
Cat. 1417	Stack 1" AC-DC, single shaft	price $7.75
Cat. 1418	Stack 1" DC, single shaft	price $8.50
Cat. 1419	Stack 1" AC-DC, double shaft	price $7.75
Cat. 1420	Stack 1" DC, double shaft	price $8.50
Cat. 1422	Stack 1" DC, short-single	price $8.50
Cat. 1421	Stack 1" AC-DC, short-single	price $7.75
Cat. 1423	Pittman brush assembly	price $ .35

Mfgd. by Pittman exclusively for All-Nation Hobby Shop, 182 North LaSalle St., Chicago 1, Illinois.

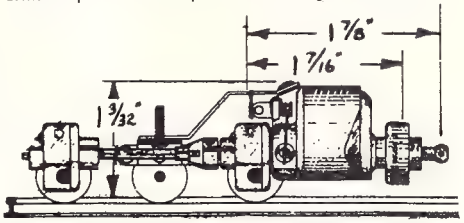


KEMTRON POWER TRUCK, HO

Sub miniature HO gauge power truck, permanent magnet design. One axle driven only. Mfd. by Lindsay for Kemtron, 750 Fulton St., Fresno, Calif.

LINDSAY L-1000 SUPER MOTOR

HO permanent magnet design. Running no load, motors run 15000 to 18000 RPM at .35 amps. Full running current should not exceed 1.0 amp. 7 pole armature, skewed slots, oilless bearings. Price $9.95.



LINDSAY 6-WHEEL POWER TRUCK

6 wheel power truck with single large motor, price $21.50 less trailing truck. L-600 is for Electro Motive diesels, L-610 for Alco. Dummy or geared trucks available for each.

Continued on page 46

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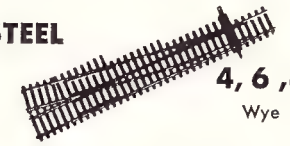

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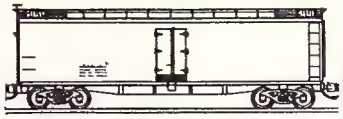

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ALLIED	5	1	1	YES	2	1	1	YES	YES	23.95	
ALLIED PACK	1.5	1	1	YES	2	1	0	YES	YES	9.25	AUTO. CHANGEOVER FROM PULSE TO FULL WAVE
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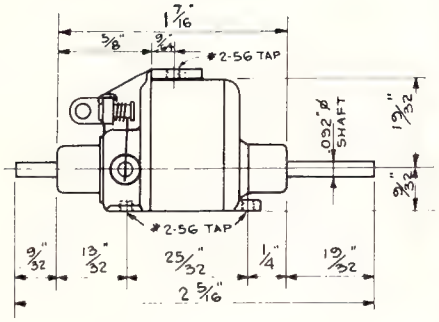
TRIO PACK	2.5	1	1	YES	1	1	1	YES	YES	17.49	
E AND H STORES, 130 W. CHELTEN AV., PHILA, PA.											SOLD DIRECT ONLY -MADE BY SCINTILLA
DUO - PACK	1.5	1	1	NO	0	1	0	YES	YES	14.95	
BASIC PACK	6	0	0	—	1	0	1	YES	YES	19.95	PREPUNCHED FOR 2 SETS OF CONTROLS
ELECTRONIC CONTROLS CO., 3124 AVE I, BROOKLYN 10, N.Y.											SOLD DIRECT ONLY
ELECTROPACK	2.5	1	1	YES	1	1	0	YES	YES	16.45	17.45 WITH PULSED POWER, UNCON. DC
ELECTRO-MITE		1	1	YES	1	1	1	NO	YES	8.95	
DELUXE NO. 2	10	0	0	–	1	0	1	YES	YES	22.95	WITH AMMETER, 22.75 LESS METER & LIGHT
BRASS HAT KIT	4	0	0	–	1	0	1	NO	NO	9.00	WITH PULSED POWER 9.50
FLEISCHMANN - MERZBACH & CO., 545 FIFTH AVE., N.Y., N.Y.											
TRANSFORMER 502	3	0	–	—	YES	—	—	YES	0	9.95	TRANSFORMER ONLY
CAB CONTROL 514	1	1	1	YES	YES	YES	NO	NO	1	7.95	
POWER PACK 503	1/2	1	1	YES	YES	YES	NO	YES	0	9.95	NO CIRCUIT BREAKER NEEDED
POWER PACK 505	1 DC	1	1	YES	YES	YES.	NO	1 AMP	3	19.95	
HOBBYLINE - JOHN ENGLISH & CO., MORRISVILLE, PA.											
	1	1	1	YES	1	1	0	1	NO	9.95	RED BLINKER LIGHT FOR SHORTS
LEYGHTON-PAIGE, 1930 UNIVERSITY AVE., ST. PAUL, MINN.											
PULSE PACK -HO	1.5	1	1	YES	1	1	0	YES	YES	14.85	PULSED TO FULL WAVE POWER AUTOMATICALLY
PAIGE PACK H-2	6	1	1	YES	1	1	1	YES	YES	29.50	MATCHING CONTROL PANELS AVAILABLE
MARNOLD CO., WEST CHICAGO, ILL.											
B-25	2.5	0	0	-	FUSE	0	1	YES	NO	18.75	NOTE: MATCHING PANELS WITH SPEED AND
B-45	4.5	0	0	-	FUSE	0	1	YES	YES	28.50	REVERSE CONTROL, LOAD COMPENSATORS,
B-85	8.5	0	0	-	FUSE	0	1	YES	YES	38.50	METERS, ETC., AVAILABLE. WRITE FOR
C-25	2.5	1	1	YES	FUSE	1	1	YES	NO	25.50	LITERATURE.
MODEL RAILROAD CONTROLS, 1823 FARGO AVE., DES PLAINES, ILL.											SOLD DIRECT ONLY
MINIPAC	1.6	0	0	-	0	0	1	NO	NO	5.95	
MODEL RECTIFIER CO., 557 ROGERS AVE., BROOKLYN 25, N.Y.											
DUAL PACK	2.5	2	2	YES	1	2	1	YES	YES	28.75	FOR 2 BLOCKS - PULSE POWER SWITCH
MODEL PACK	2.5	1	1	YES	1	1	1	YES	YES	21.75	" 1 " "
TRI- PACK	4.5	3	3	YES	2	3	1	YES	YES	42.95	" 3 " "
MODEL METER P.	5	0	0	-	1	0	1	YES	YES	24.50	USE WITH SEPARATE CONTROLS. AMMETER
MODELADAPTER	-	0	1	YES	1	1	0	-	-	9.25	USE WITH TOY TRANSFORMER
THROTTLE PACK	1.2	1	1	NO	YES	YES	NO	YES	NO	10.95	PULSE POWER SWITCH
SCINTILLA RAIL POWER WORKS, 324 LAFAYETTE ST., N.Y. 12, N.Y.											
UNIPAC	1	1	1	NO	1	1	NO	YES	NO	10.95	SELF RESETTING CIRCUIT BREAKER
ELECTRAPAK SR.	2.25	1	1	NO	1	1	1	YES	YES	21.45	
ELECTRAPAK C	2.25	0	0	-	1	0	1	YES	NO	16.50	USE WITH CONTROL PANEL KIT
DYNAPAK III	4 DC	2	2	NO	1	2	1	2 A.	YES	29.95	
MULTIPACK SR	10 DC	0	0	-	1	0	1	2 A.	YES	34.75	"
NO. 2 KIT	2	0	0	-	1	0	1	YES	NO	13.95	"
NO. 4 KIT	4 DC	0	0	-	1	0	1	2 A.	NO	18.50	"
NO. 10 KIT	10 DC	0	0	-	1	0	1	2 A.	NO	22.95	"
CONTROL PANEL KIT	-	1-3	1-3	NO	1-3	1-3	0	-	YES	8.95	ONE SET CONTROLS, EXTRA SETS 6.50
SPEEDMASTER, MOYES J. MURPHY, BOX 616, ARCADIA, CALIF.											
V 200 VARI - PULSE	-	1	1	YES	1	1	0	-	NO	32.50	CONTROLS ONLY. USE ANY POWER PACK
PC - 12		1	1	YES		1				39.90	PULSED & FULL WAVE POWER
TOWER ENGINEERING, BOX 32, VALLEY STREAM, N.Y.											
RECTIPACK	1	-	1	NO	0	1	-	-	NO	4.95	CONTROLS & RECTIFIER, USE TOY TRANS.
VARNEY SCALE MODELS, 4401 PONCE DE LEON, CORAL GABLES, FLA.											
2442	150 MA	1	1	YES	1	1	0	-	NO	9.95	
WALTHERS, 241 E. ERIE ST., MILWAUKEE, WIS.											USES 2 TUNGAR TUBES FOR RECTIFICATION
E-310A	10 +	0	0	-	0	0	9-18 V.	YES	NO	39.50	ALSO IN KIT FORM



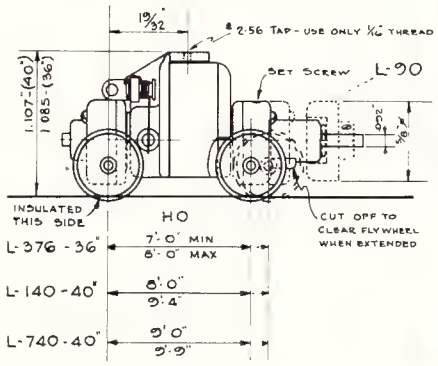
L-170 MOTOR

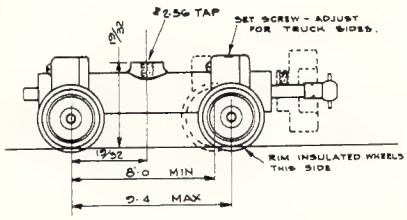
LINDSAY L-170 SERIES MOTORS

Permanent magnet design, primarily for HO gauge. Price $8.50. Adapters are available for mounting Lindsay motors by inserting the long end bearing in a tunnel and tightening a set screw. The L-192 adapter is for pre-war Varney locomotives where the mounting screw was crossways of the frame. The L-193 adapter will work on most other HO locos, price $1.25. Lindsay motors may be mounted in various other ways since most types have mounting pads and tapped holes as noted on plans.

LINDSAY L-570, L-580

HO permanent magnet design, 7 pole armature, skewed slots, oilless bearings. Small motor with ⅜" magnet, for Stubby and Tiny Tim locos. Price $9.95. Mfgr. No. L-580, same as above butwith worm, price $10.50.





OUTLINE L-625
4 WHEEL GEARED UNIT

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4 wheel power trucks have motor slung between wheels directly geared to each pair of wheels. L-376 has 36" wheels for model traction use, price $16.50. L-140 has 40" drivers for average diesel use, price $13.95. L-740, also with 40" drivers and large magnet for heavy duty, price $13.95.

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The Annual Index to Vol. No. 22 of "RMC" will help you to find that special building idea quickly; all material in those issues published from June 1953 to May 1954 have been cross-indexed for your convenience. Get your copy today. Send a stamped addressed return envelope to:

INDEX
Railroad Model Craftsman, Ramsey, N. J.

3 New Ways TO ADD TO YOUR RAILROADING PLEASURE

1 NEW MANTUA STREAMLINE COACHES

Long. Lavish. Life-like. Here's the most welcomed addition to passenger equipment ever to roll on HO rails. Into these rail beauties, Mantua has engineered stark realism plus faultless, rail-hugging performance—even on short radius curves. A combination of prime features, never before to be had in streamline cars.

Just read the specifications. Heavy, extruded aluminum bodies. Formed aluminum floors. Highly detailed, pressure molded ends. New, high speed, free-swinging Talgo Passenger Trucks. Decals for B&O, Milwaukee Road, Southern Pacific. Easy, fascinating assembly.

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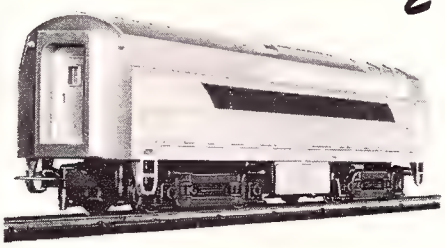

2 NEW MANTUA NON-POWERED DIESEL "B" UNIT

Now you can have a sleek, dummy, running mate for your Baldwin "Shark Nose" Diesel "A". Identical in every way to Mantua's powered "B" except that it has two non-powered, free-rolling trucks with needle-point bearings and highly detailed matching side frames. Couple one or two of these Dummy "B's" to your Shark nose "A" for a really spectacular model of modern dual service power at moderate cost. COMPLETE KIT No. 219 $7.95

3 NEW MANTUA PASSENGER TALGO TRUCKS

Good news for railroaders who own passenger equipment, vintage 1912 or later. Now Mantua brings you all the performance-tested Talgo features in a high speed passenger truck. Truck frames are super-detailed pressure die castings. (Note the slack adjuster brakes and ball bearing journal boxes.) And like Talgo Freight Trucks, they come with Mantua Automatic Couplers—built in as an integral, free-swinging unit. Any radius curve your cars will take, Talgo Passenger Trucks will ride smoothly, effortlessly. Packed in useful plastic box.

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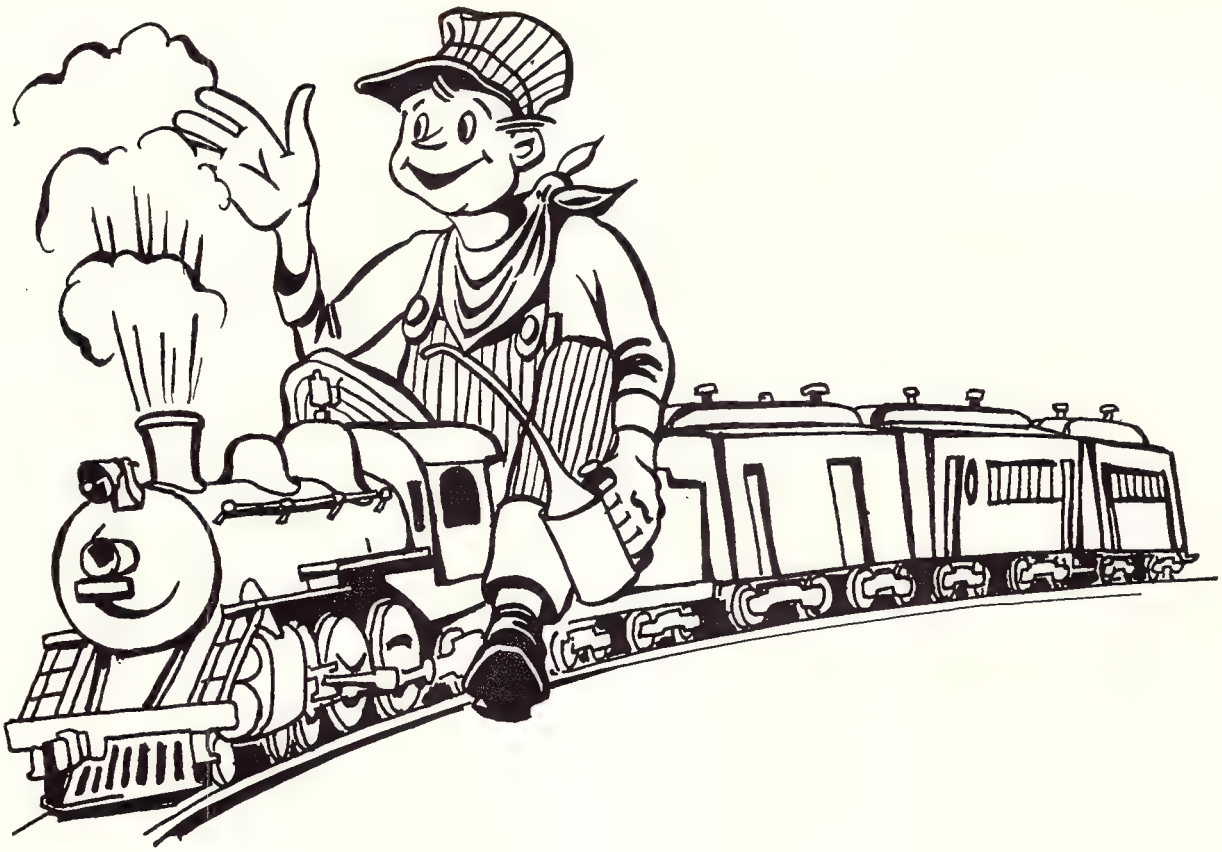

All aboard... for the California HOBBY SHOW

It is nearly time to hi-ball for the 7th Annual California Hobby Show where the green board is up for model railroading. All scales and gauges will be represented. Highlighting the show will be operating live steam locomotives. And this isn't all. You may bring the "widows" because the building will be jammed with hobbies of all kinds. Ceramics, dolls, leather, copper and needle craft are just a few of the hundreds of handicrafts and collections they will enjoy.

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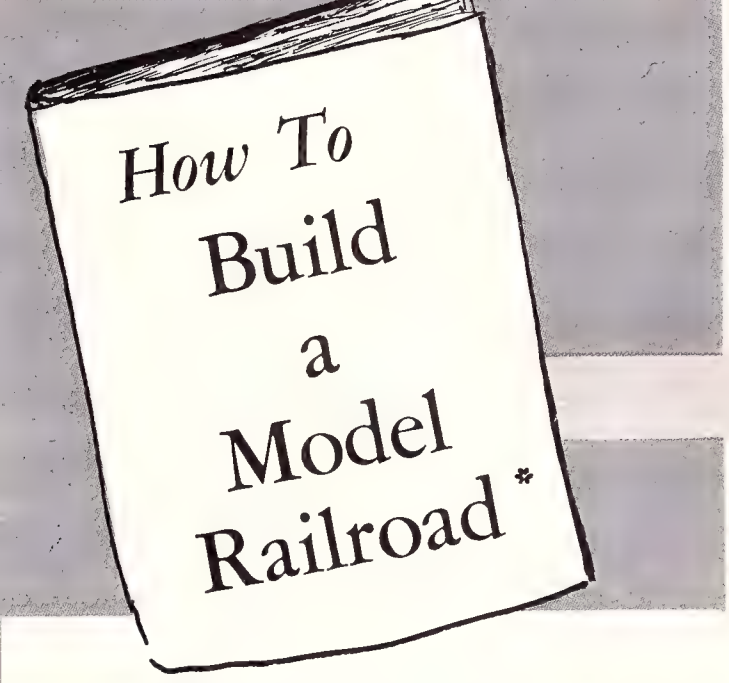


power supply and control

No other hobby offers the degree of operation and control possible in model railroading; if the modeler has some basic knowledge of the various electrical theories and ideas involved.

CHAPTER V

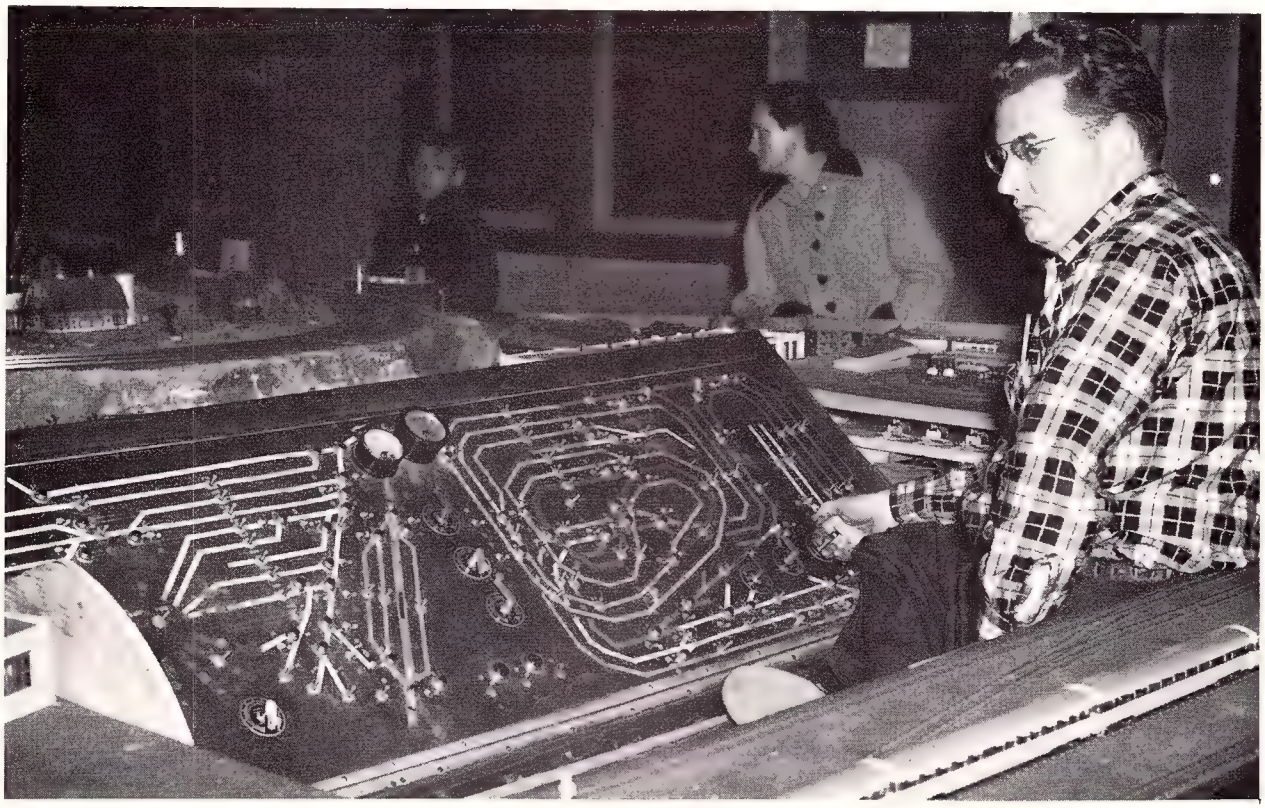
A MODEL railroad is not of much use unless there is some means for propelling the locomotives and cars, and electricity has been chosen by the indoor railroaders as the motive force. It permits locomotives to be built as powerfully as desired and, at the same time, true to their prototypes in outward appearance. Best of all, it allows the locomotives to be controlled from a distance. Simply by shutting the current off or turning it on, trains can be made to stop and start no matter where they are on the track layout.

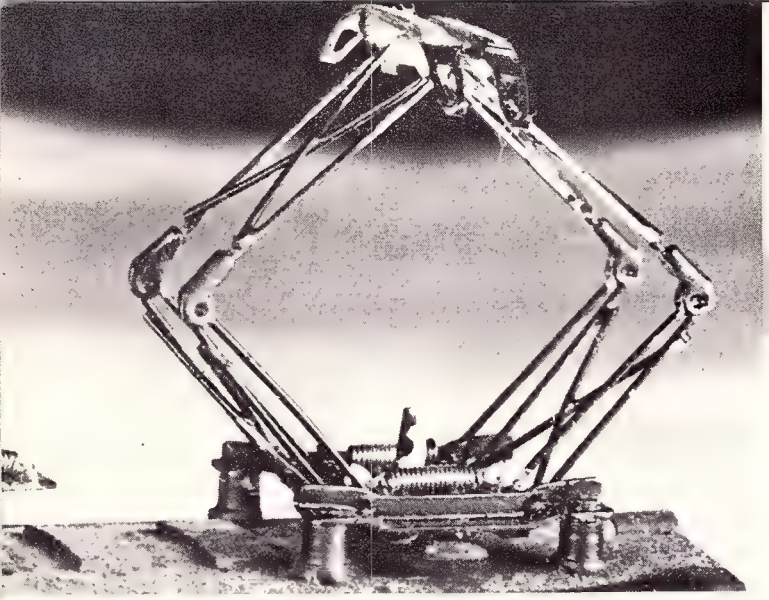
Most of the early full-size railroads that used electricity made use of an extra rail, laid parallel to the regular running rails, for carrying the current to the motors, the return current being "grounded" so that it went back to the generators by way of one or both of the running rails. This system is still in wide use, especially for shorter lines, subways, and elevated railroads. It has been chosen by most model railroaders as the most satisfactory for their purpose.

When electric railroads were laid in city streets, as trolley lines, the presence of the live rail constituted a danger to passers-by, and so it was replaced with an overhead wire. When long-line railroads began to use higher voltages, they too found it desirable to elevate the conductor in the same way, although a more elaborate system was needed than for street railways. The wires had to be more rigidly supported, and the principle of the suspension bridge was called upon to provide a "catenary" system. One strong wire is looped between supports on a long, flat curve, and the actual conductor wire hangs from it, being supported at frequent intervals to keep it as level as possible.

Trolley poles are inadequate for heavy electric locomotives, so a device called a pantagraph is used to pick up the current from the wire. This, as well as the catenary system, can be reproduced on a model layout without too much trouble, and makes a very realistic system when used in connection with electric-type locomotives. Of course, with steam types, it would be useless.

We are all familiar with electricity as a force that





While it is possible to build pantographs from scratch, most modelers find that commercially made miniatures are economical and highly serviceable. Made for HO and O, they are usable for most other gauges as well. Trolley poles are also manufactured.

power supply and control

will travel through wires, and other metal parts, but not through non-metallic substances. The *pressure* that causes the electricity to flow is known as voltage. A high-voltage current is one that has the ability to penetrate through mediums having a high resistance—even to the point of jumping through the air in the form of a spark. The *amount* of current flowing at any given time is called the amperage.

The whole thing is often compared to the action of water in a pipe. At certain pressure (voltage), a given amount of water (amperage), will flow through the pipe. If we increase the pressure, more water will pass through. It is exactly the same with electricity.

Carrying the simile further, we could imagine the water pipe being connected to a turbine, so it produced motion. A small amount of water passing through at high pressure could be made to do just as much work as a large volume of water striking the turbine sluggishly. Volts and amperes are similarly related.

When using water at high pressure, we would have to take extra precautions. Pipes, valves, and so on would have to be very strong to withstand the pressure. In electricity, high voltage calls for better insulation, and increases the danger of shock. At six volts, for instance, electricity is hardly able to penetrate our bodies, but at several hundred volts the pressure is great enough to force a heavy amperage through the flesh, sufficient to cause death. Even the 110 volts used in house-lighting circuits can give a very unpleasant shock, and has been known to kill. For these reasons, we find it desirable to use a low voltage on model railroads. The maximum on O gauge usually is about twenty volts while HO trains run on 12 volts.*

There are two kinds of electricity: D. C. (direct current) and A. C. (alternating current). The first travels in one direction only, but the A. C. is so called because it changes direction rapidly—usually sixty times a second. Each has its advantages, and both of them are used in model railroad operation.

Alternating current is the most common, because it is the type supplied to most houses for lighting. Its big advantage is the fact that it can be changed in voltage with a simple device known as a transformer. Since the current is supplied to the house at 110 volts, we need a transformer that will reduce the voltage, and this we can obtain cheaply from a dealer in toy trains. A transformer of at least 100 watts capacity should be used. Toy train transformers go up to only 150 watts, and if your model railroad is very elaborate they will not have sufficient capacity to run the trains. Then you will have to get a bigger transformer from a model-supply house, specially built for model railroad purposes.

Aside from the ease with which it can be obtained in most locations, alternating current has few advantages. When they can obtain it without too much trouble, most model railroaders probably would prefer to use D. C. The disadvantage here is in a suitable source of supply.

Alternating current can be changed to D. C. by using a rectifier. Many specially designed power pack(age)s are available for the miniature railroader in a wide range of sizes, prices, and capacities. They work by first reducing the A. C. to the required voltage, then changing it over to D. C. Where a large flow of current is required, as on a large layout, then on a motor-generator set is preferred. This consists of an A. C. motor driving a D. C. generator, and you can assemble such a unit from an ordinary ¼ horsepower motor and an old automobile generator.

There are several other good sources of power for a D. C. system, namely the D. C. power pack and batteries. You can use ordinary dry cells, but they will prove expensive in the long run. A better idea would be two 6-volt storage batteries of the kind used in automobiles. These could be wired in series to produce the required twelve volt output. The original cost will be slightly more, but they will last longer because the batteries can be recharged when they run down.

The type of current you use is governed more by the motors in your locomotives than by any other factor. That is, you probably will find it most convenient to use A. C. unless you have to use direct current. The motors used in most O gauge models, along with most of those employed in the OO gauge are of a type that will run equally well on either A. C. or D. C., but most HO gauge motors are of the permanent-magnet type, and will operate only on D. C. current. The big advantage of a permanent magnet motor is the fact that it can be reversed simply by changing the direction of current. That is, no matter where the engine is on the track, it will always run forward when the current flows in a given direction. When the current is reversed, the engine will go backward, regardless of its position, on the layout. This is a tremendous advantage, and is one of the features that has made HO gauge so popular. It permits full control of the trains at all times.

Most of the HO-gauge motors with permanent magnets can be used in the other gauges as well. Some small O gauge models may not have room for anything larger in size.

Reversing on A.C.

There are a number of permanent-magnet motors available for O-gaugers. In the past, most O-gaugers were content to reverse their engines by hand, while those who wanted something more realistic used one of three systems, each more complicated than the direct reversing of HO gauge. (The introduction of a per-mag motor for O gauge has changed all this). The first method was the familiar sequence reverse used on toy trains. This is a reverse switch so connected that it operated each time the train was started or stopped. All that was necessary to make it go backwards was to flip a switch or push a button on the control board so that the current would be interrupted for a moment. The idea is sound, but in practice it often turns out to be more of a nuisance than anything else. You never know ahead of time whether the engine is going to start forward or backward when you turn on the juice, and any gap in

* NMRA Standard for all gauges is 12V. DC.

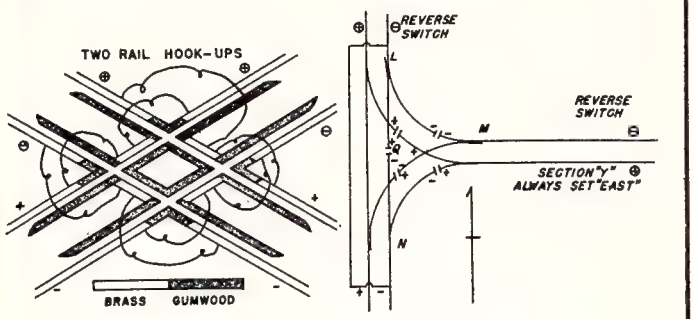
the third rail will interrupt the current and make the engine reverse without warning.

A second idea, popular with many scale modelers, is to connect this sequence reverser so that it will not respond to the ordinary A. C. current used to drive the train. Then a separate source of D. C. is arranged so it can be switched into the circuit when reversing is desired. The train proceeds normally unless this shot of D. C. is given to it, then the reverser is actuated.

There is a third way of reversing universal motors. It makes use of what is known as a polarized relay. The engine is run on D. C. just like an HO train, and this relay, in effect, makes the motor into a permanent-magnet type. It consists of a permanent magnet and a coil, arranged so that the moving part of the relay swings to one side when the current flows in one direction, and takes the opposite position when the current flows in the other direction. This type of control is preferred to the one just mentioned when the available power supply is D. C.

Third Rails

Having decided on what kind of power to use, the model railroader must give thought to how the current is to be brought to the locomotive motor. The third rail



Typical two rail hookups on special track sections. At left is a crossing made of brass rail and insulated rail sections of wood or plastic. The wye formation at right shows gaps and hookup wires required for two rail.

is a common method for O gauge models, and in many ways it is the most satisfactory. Supported on brass chairs, as described in the previous chapter, it follows the running rails continuously except at switches and crossings. Place the third rail on the inside of the turn on curved track; put it between tracks on a double-track line. At switches, it is necessary to leave a gap, or these gaps can be replaced by little ramps consisting of brass strips soldered to the third rail at an angle, so that the third-rail shoes are lifted up as they come in from the side. These ramps are more realistic than the gaps, but are not quite as easy to make.

Contact shoes, on real locomotives using the third rail, consist of little hinged flaps of metal, mounted at the side of the engine trucks, and pressed down with a spring. Although there is no reason why this construction could not be used on a model, another style is much more common. It consists of a pair of long bars hinged near the center of the locomotive, and pressed down against the rail by springs. The exact construction takes many forms. Sometimes the bars are heavy wire, brass rod, or even spring material. Commercial shoes often make use of bronze castings or pressed-metal bars. One of the most effective types of shoe consists of a length of flexible shafting, of the kind used inside an automobile speedometer cable, fastened to a block of fiber in the middle and reinforced against wear on the outside.

No matter what type of shoe you use, you will want to mount it as inconspicuously as possible on a steam-type locomotive. Usually the best place is between the first two pairs of driving wheels. Only the tips of the shoes will project, and they will not be at all noticeable. Because of the gaps at switches, and since a single shoe cannot be relied upon to give perfect contact at all times, you should mount a second shoe on the tender.

It should be mentioned that some model railroads use a third rail in the center, notably with "tinplate" trains. This arrangement is not recommended for scale use because it leads to complication at the switches. Unless you already have considerable "mileage" laid with tinplate track, put your third rail to one side like the big railroads.

Overhead Wires

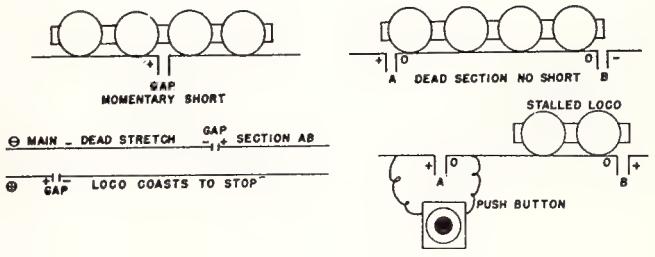
Overhead wires are, to many model railroaders, the most realistic and interesting system possible. The effort in installing and maintaining this type of power supply is quite a bit greater than for third rail, and so it should not be used unless it is wanted for its own sake.

The catenary system used on the real thing should be imitated as closely as possible because it is the strongest arrangement, requiring a minimum of attention. Erect pairs of poles along the right-of-way, and connect them over the track either with a rigid member or a length of stiff wire. Then measure the distance between supports, and make sections of overhead wire on the workbench to fit. Stretch all wire tightly before using it, otherwise it will sag soon after it has been installed.

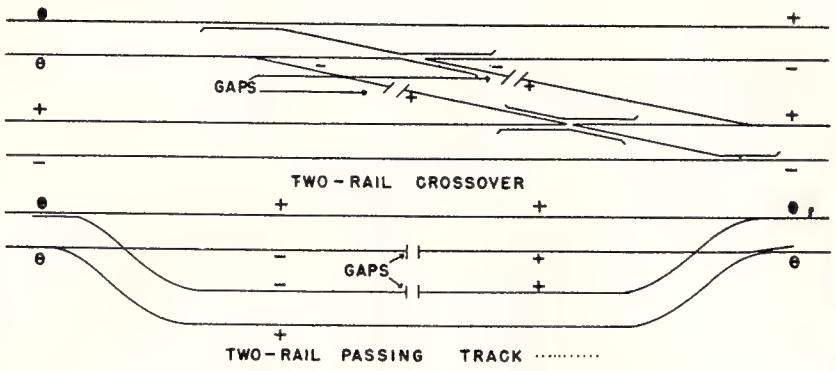
Two-Rail System

The greatest realism with steam-type locomotives is obtained by means of the two-rail system. The principal requirement, and the one that is its chief disadvantage, is the fact that each wheel of the train must be insulated from its mate. Ordinary straight and curved track, when laid on wooden ties, needs no special insulation, but switches and crossings do. Whether A. C. or D. C. current is used for operation, precautions must be taken to insure that the train will continue in the same direction when it passes over switches. All this has been worked out by active model railroaders, and nothing remains for the model railroader who wants realism but to go ahead with a two-rail system if he wants to. Indeed so great has become the trend toward the two rail in scale model railroading that except in O gauge will you find any three rail layouts. An exception to this, of course, is on those layouts where the owner has deliberately chosen outside third rail or overhead wire because he is specializing in heavy electric or trolley operation.

Insulated wheels present no difficulties and many wheels today are molded of tough nylon or other molded plastic. Others are turned of brass or other metal and



In theory it would seem that a short circuit would occur when a locomotive would run from one block to another when polarities are reversed, requiring a dead section and possibly a push button as shown right. In practise, such precautions are unneeded.



Two rail is easy, the primary concern being the energizing of rails for the movement of trains and the avoidance of short circuits. The diagrams above show the gapping necessary in a crossover and passing track. Plastic rail joiners in HO do the gapping quickly and neatly.

have an insulating dieelectric applied to the axle prior to forcing on the wheel.

Locomotive wheels are insulated in either of two ways. The wheel itself may be separated from its axle by means of a tight-fitting bushing, but this arrangement is not considered the strongest. The fibre itself is never as strong as metal, and there is a tremendous leverage exerted by a large locomotive wheel when a side strain is put near its rim.

Another way of insulating wheels, more generally preferred, is to make the wheels with separate rims, like those of real locomotives. Between the center and this tire is inserted a thin band of sheet fiber. It is hardly visible, and when properly applied does not weaken the wheel in any way. The construction presents another advantage over that formerly mentioned. With insulation at the hub, the driving wheels of a locomotives still would be short-circuited through the driving rods and cylinders. Therefore it would be necessary to insulate some of these parts, too.

Switch construction represents no great difficulties for two-rail. All you need to do is insulate the two continuous running rails from all other parts of the switch except the frogs. This is shown in one of the drawings. Then the switch blades will act as contacts to carry the current in the right direction. In the diagrams, the terms *plus* and *minus* refer, of course, to direct current, but the principle remains the same if you are operating on A. C.

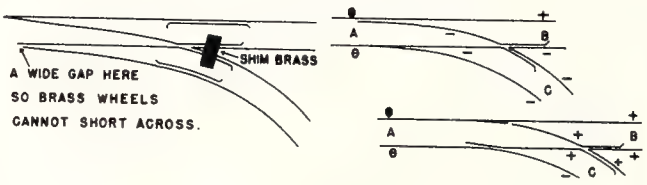
Insulating a crossing for two-rail is a little bigger job, but not really difficult. In the drawing, the shaded portions represent pieces of hardwood or other insulating material. It is important to keep the guard rails long if you intend to operate trains over them at a rapid pace.

No matter whether you use third rail, two-rail, or overhead wires, you will want to divide your layout into blocks, each of which is controlled separately. If the whole lavout were in one electrical unit, you could operate only one train at a time, and any locomotives standing on the track would have to be shut off at the reversing switch to keep them from going, too.

There is no set rule for the length of each of the blocks. This works out as a matter of course with individual layouts. The main line should be cut up into two or more sections, depending on its length. You can wire these sections so that they can be connected to each of two or more power packs, then two trains can be run under entirely separate control. As the train approaches a given section, the current is turned on in advance of it, and as it leaves the previous block, current is shut off. On a club layout, this system can be extended to give half a dozen "engineers" separate control over as many different locomotives.

The whole principle is so simple that there is no need to elaborate on it.

On a three-rail system, the gaps between blocks are simple openings between the ends of the third rail—



These diagrams illustrate how switches also act as electrical switches to turn current on and off automatically as the switch points are set for straight or turn. Three rail offers no such control.

an inch or so apart. The ends of the third rail must be bent downward to form a ramp for the contact shoe to climb up.

Where a two-rail direct-current system is employed, the ends of the rails are just left 1/32" or so apart. No other insulation is needed if they are spiked down firmly enough to prevent creepage. If trouble of this kind does occur, a bit of thin fiber or heavy paper between the rail ends will take care of it.

In theory a special precaution is needed for this type of power supply, however, as explained in one of the illustrations. A train leaving one of the blocks may find that the next section is receiving current in the opposite direction. Then a short circuit will occur. To prevent this, "overlap" the ends of the rails as illustrated. The overlap should be long enough so that your fastest engine will not coast past it. It will come to a stop and will not proceed unless you change the direction of current in one of the sections, so that the train can either go ahead, or return in a backward direction. In practise, this problem is of no great consequence and especially in the smaller gauges may be disregarded entirely.

Power Control

No matter what your source of power, you will need some means of controlling it, and also a protective device. Control of train speed is brought about by means of a rheostat. This is simply a variable resistance that lets more or less current flow through at the will of the operator. For small layouts you can use heavy-duty power rheostats of the type used in radio work, or the kind sold with toy trains. Where a heavy load is to be imposed however, it is better to get a suitable resistance from a model-supply house.

Be sure to get one suitable for the needs of your model railroad. In O gauge, you'll need one with a 20 ohm 100 watt capacity. S gaugers should use a 30 ohm 50 watt unit, while HO and TT gauge requires a 40 ohm 50 watt rheostat.

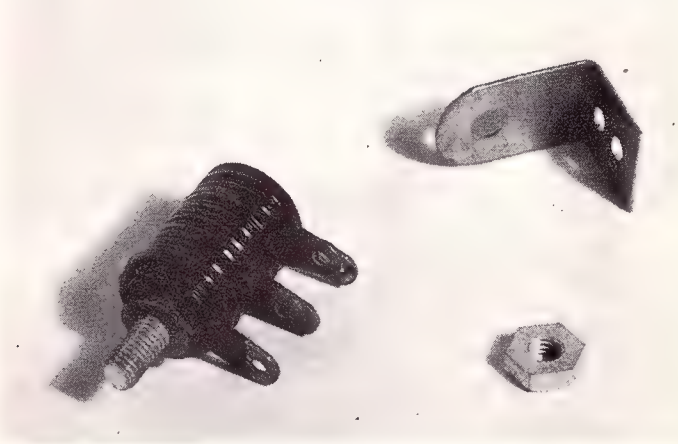
A short circuit is the condition that occurs when a complete path is formed for the electricity without appreciable resistance to hold it back. Then there is a rush of current through the system, and something is bound

to give way. In our house-lighting circuits, protection against "shorts" is provided by means of fuses, which melt when the load is too great. On a model layout, short circuits are so frequent that replacing fuses would become expensive. Instead, a device known as a circuit breaker is used. Current passes through the coil but a normal flow does not attract the armature sufficiently to release it. When a heavy current hits the coil, however, the magnetism attracts the moving armature and snaps off the current. You can buy several types of circuit breakers and another type coming into increasing use is the thermal type which operates due to the expansion of metal when heated due to too much current flowing through. As a general thing, avoid those used with toy trains, since they have been designed for conditions different from those encountered in scale model railroading.

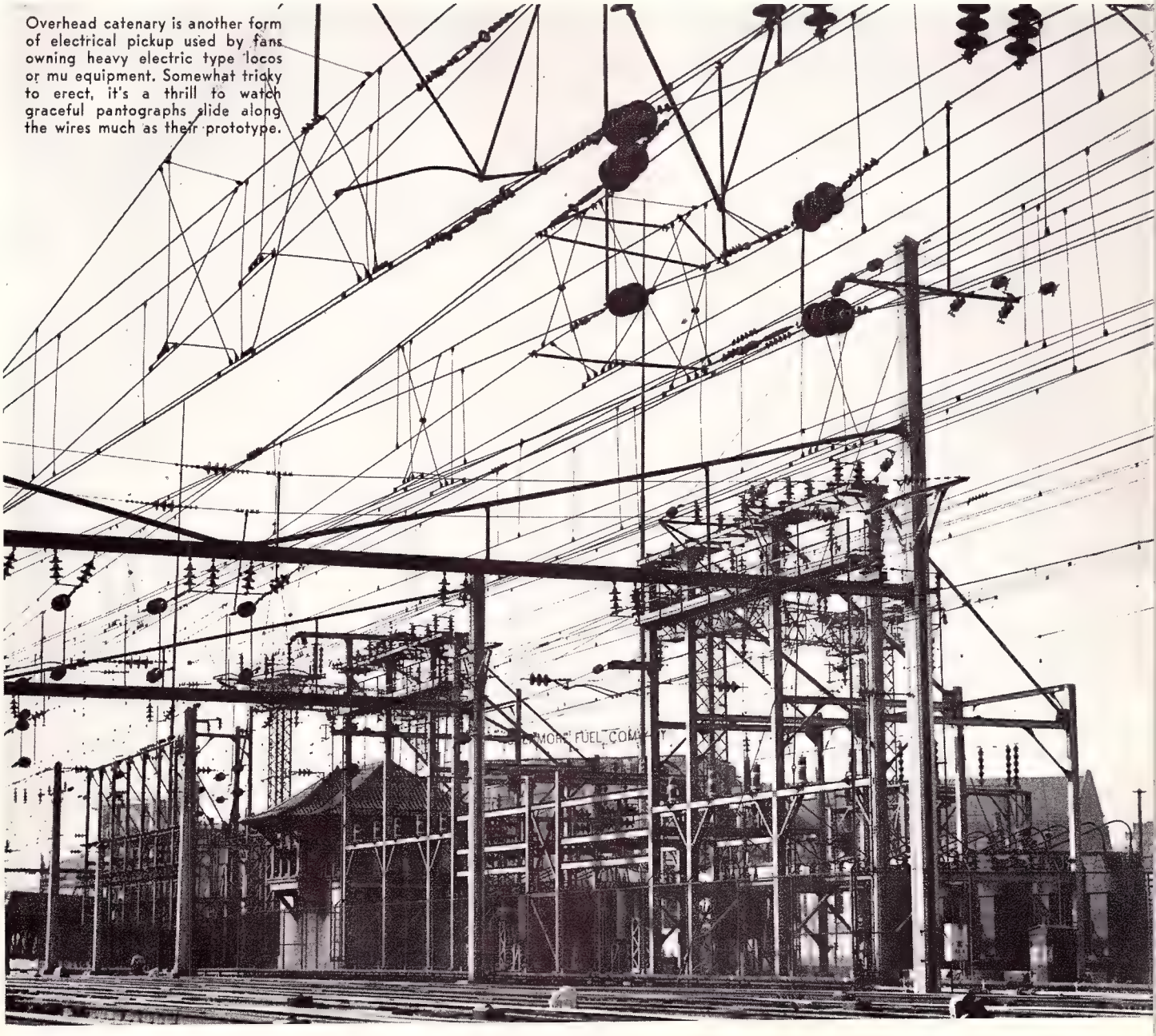
This chapter has been written to iron out the problems connected with electrical circuits in the simplest possible way so that the beginner can get a real start without being lost in a maze of amperes, ohms, volts, and impedances. Once the principles have been grasped it is easy for any enthusiast to work out more complicated problems on his own system.

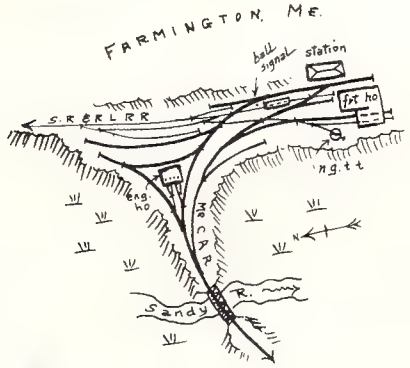
NEXT MONTH: Chapter 6—Locomotives

One type of rectifier is extremely useful in converting toy locomotives to Direct Current operation. Unit fits right into the tender.



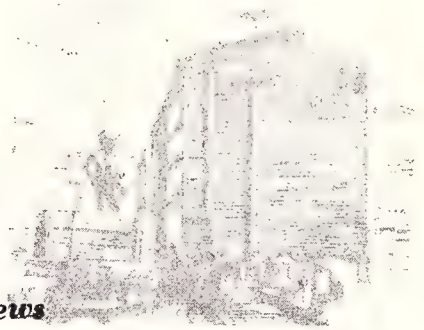
Overhead catenary is another form of electrical pickup used by fans owning heavy electric type locos or mu equipment. Somewhat tricky to erect, it's a thrill to watch graceful pantographs slide along the wires much as their prototype.





Narrow Gauge junction

Conducted by
Dick Andrews



Dual Gauge Crossings

ONE of the interesting phases about narrow gauge are the intriguing track features: dual gauge—stub turnouts—and perhaps the first thing you face is the problem of crossing a standard gauge track at grade. In other words—a simple crossing—except that one track is narrow and one regular standard gauge. If this is a standard crossing angle—0 or 45 degrees—a commercial crossing might be used, cut down to narrow gauge one way. Yet, that is limiting—and it is a rather simple job to build a custom crossing at exactly the angle you want. How about one track straight but the other on a curve- Can be done—just about as simply as both straight! Here's the method:—

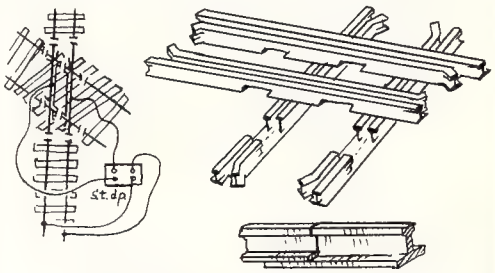
The basic feature of any crossing is the fact that guard rails parallel the running rails each way, all the way through the crossing. Therefore, let's sketch out the general thing on a piece of paper and then make up just four basic elements with which to work:—four sets of running-and-guard rails—each set consisting of the two rails soldered together base to base. Bend the ends of the guard rail out a bit as shown. Take a hunk of board and spike down two units to gauge for one line of track one way. Lay the other two over them to gauge and at the desired angle (this is not critical but get as close as you can). Mark on the heads of the spiked down rails where the other rails go over them. Now simply take the edge of your mill file and file through the spiked-down units, right down to the base. Take the other units, and file away JUST the base so that you can lay them down right through the slots in the spiked down rails, and have them sit flat on the board as well. This is actually just mortising.

Now spike down this second pair of units to gauge and in place. Take your soldering iron and solder them together well with the first units, filling all gaps. Solder is kind to us here. Small angles of brass will strengthen the corners, and are prototype (for that same reason). Now you have a crossing except for one thing — the flangeways of one track are interrupted by the rails of the other track where it cuts through. Take the blade out of your hacksaw and lay it in these flangeways, and simply cut down through. It is as simple at that. And one or both tracks can be on any radius curve!

The wiring problem will vary according to different gauges. My crossing is O gauge 2-rail, and On2, which is ½" gauge of track and of course also 2-rail. Two gaps take care of this situation. A simple DPST switch makes the crossing dead electrically for the O gauge which easily spans it—and brings it completely alive for the On2 which needs it thus all the way through due to the short pick-up span of my loco (¾"). The running rails of both O and On2 beyond the crossing are of course also insulated from the crossing itself.

This method might be used to run a narrow gauge track across a standard track without even removing the latter, from its place if already installed. However I think you'll want to install special ties under the crossing at what's called a "compromise angle"—which you'll easily see the hang of and reason for in the sketch.

But wait a minute! How do we make such a crossing if the narrow gauge is using a smaller, lower size of rail than the standard gauge does? This might be done by bringing the narrow gauge rails up to the crossing on higher ties —or, for a neater job if the angle is



somewhat sharp—make a section of "compromise height" rail. Fortunately for us, most rails step down in size by the thickness of the base. If you are using S rail for the O gauge, as I do, and HO rail for the On—simply file away ¼" of the S rail down to the base, and solder a short section of HO rail in place. The sketch shows this—but be sure to align the INNER surface of the rail heads. Otherwise the jog might be annoying. In the same way, HO rail will accommodate HOn rail. This trick will work anywhere on the pike—even in a strictly standard gauge situation—and will enable you to start the higher ties for the lower rail evenly, rather than having to whittle some lop-sided ties.

There is nothing like a crossing at grade of narrow and standard gauges to point up the difference between them! It wil widen the standard gauge in effect—at the same time making the narrow gauge seem even smaller!

Probably no narrow gauge sported more such crossings than the 2' gauge Sandy River & Rangeley Lakes RR, where it terminated and interchanged traffic with the standard Maine Central RR's branch at Farmington, Maine. Note how the standard pike has its yard laid out on a long curve plus a wye—and the narrow gauge line comes in along a narrow path and splices its way through. This could serve as a fine prototype for many layout situations. One that suggests itself is that of a narrow gauge pike that runs on a shelf along a wall—running onto the regular layout table at a back corner where the standard line curves on part of its loop. A ball signal was located right at the hot spot—and equipped with two balls—one to bring on the standard trains—and the other to high ball the little narrow gauge drags on out of town.

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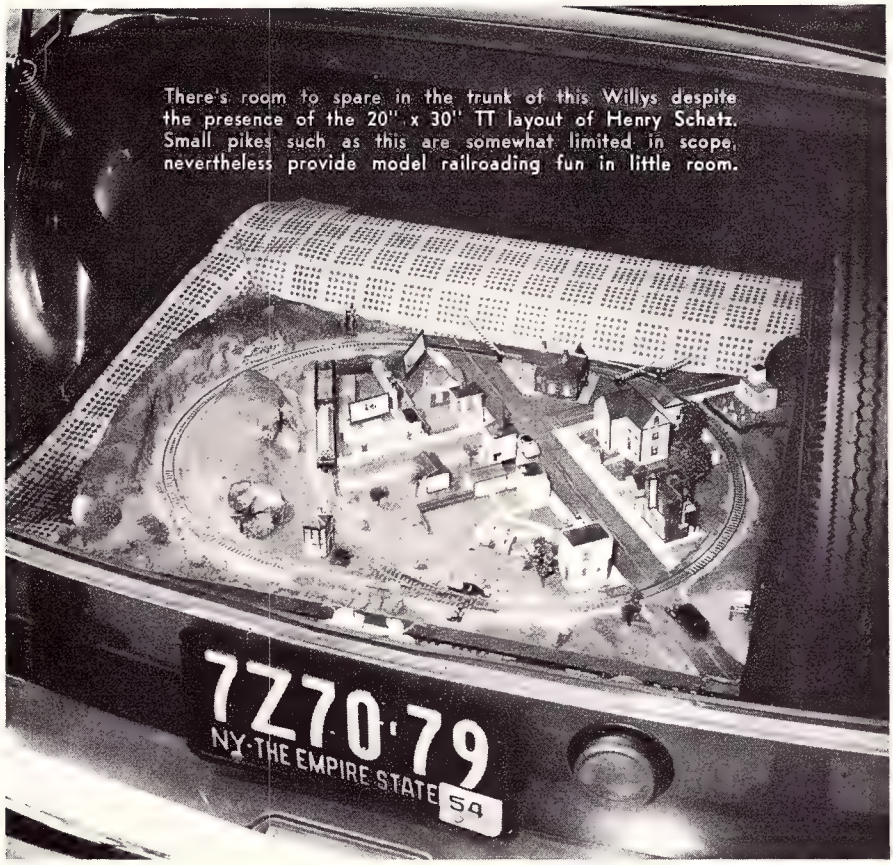


There's room to spare in the trunk of this Willys despite the presence of the 20" x 30" TT layout of Henry Schatz. Small pikes such as this are somewhat limited in scope, nevertheless provide model railroading fun in little room.

photo by Bill Wherry

"Off'n the table top"

News and Views of TT

By Glyn Lewis

ANOTHER NYSME show has come and gone although at this writing it is still a week away and we are up to our necks in preparation. The building of the display was little more than a day's work. A 6x10' layout, simple with four loops, up and over, but we get down a hundred feet of track. Scenicked a good portion of it, too. Lot's of fun with able assistance from Sherman Dance and Sherm Jr., Henry Schatz, and Erik Nielsen. Most of the TT manufacturers and a number of accessory manufacturers helped make the layout a success. Thanks should also go to the boys of the New York Society for their generous help and hospitality, not to mention their enthusiasm for our efforts. Next month we'll have pictures and a report on the show for you. Meanwhile, we'd sure like to see hobbyists, dealers, and manufacturers in other parts of the country try a similar idea. Get a display, no matter how small, of TT in the next hobby show in your neck of the woods. It really pays off in interest.

Another way that TT is getting known is by way of television. Bill Healion's WNBQ Chicago television show *Hobby Time* recently featured the Gandy Dancer 4-4-0 kit as built by commentator Healion. Pictures of Healion's fine TT layout have appeared earlier in this magazine.

FLASH

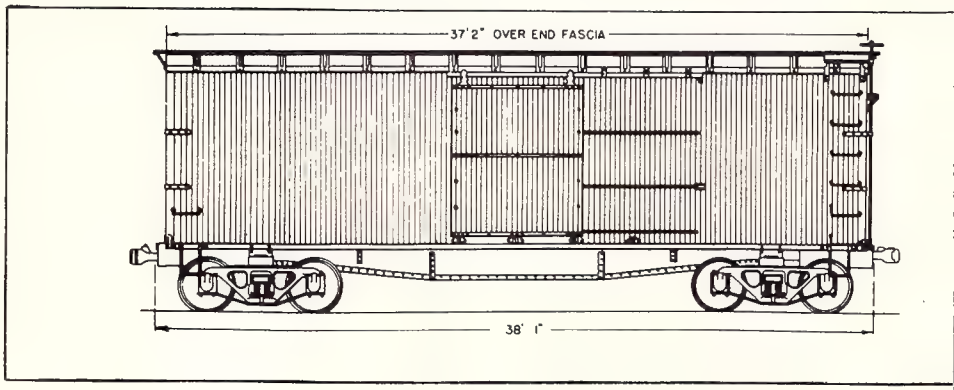
Just an hour before typing this we received from Graham Bretzger, boss man of "Table Top Miniatures," a package containing the first of some *NEW* TT figures. . . . This is GOOD NEWS for ALL TTers. If you haven't got the complete line of TT people put out by 'T.T.M." *you just ain't "with it."* The new ones are: an engineer all ready to take his seat in the cab of your loco; a fireman caught with his shovel in mid swing (he can be "pouring it on" or digging into the "black diamonds"); a really picturesque hobo, this "knight of the road" is complete with "bindle" and a real TT *cigar*! A hitchhiker, with suitcase and thumb "at the ready"; two workmen carrying a timber, (one of them has a hammer too); and last but not least, "man's best friend," right, "Rover" in TT.

How's that for an increase in the population? Coming VERY soon will be a steer, and in the near future the livestock problem will be solved by Mr. B. For those of you who do not own some of these figures, they are really great, in this day of overworked superlatives, we can honestly say these are SPECTACULAR. No blobs of metal these, but rather, perfectly proportioned miniature sculptures. Mr. Bretzer is a sculptor and jewelry designer. What Gutzem Borghlum was to a mountain, Graham Bretzer is to model railroading! Certainly good news to all is the fact that Graham VERY soon will bring forth a box car in TT, all metal, we have promised not to say more, but when we get the "high ball" we'll give you all the details. By the way, if your dealer does not have the figures we have been raving about, tell him to order them from Sherman Dance, (who acts as distributor) or send for them yourself. They are available painted or unpainted, and are easy to paint because of the "handle" that is cast on for your convenience (easily removed after painting). We use Floquil paints for this job (and all others too). Dull, covers in one coat, but thin enough not to obscure detail, the wide range of colors are an advantage too.

Some time ago we were sounding off (the wife says "Some time ago," it's NEVER very long ago!") about the absence of telephone poles on so many layouts, it's a bit of everyday realism passed up by many hobbyists that should know better. Well, to make a long story short (which we NEVER do), recently S. Dance asked us "What's an idea for a new unsupplied, small casting?" we replied, with a boyish lisp, "How about telephone pole crosarms?" . . . Voila! . . . we have 'em . . . Gandy Dancer cast metal crossarms.

E. S. Nielsen is in again with sumpin' new, a buckboard with horses, this in addition to his dump truck, and to be followed with other road vehicles etc.

The designing department of KEMTRON is busy with some new TT cars, can't say more right now, but if they are anything like the hopper . . .



WOW! (we just bought 2 more . . . love 'em)

Every once in a while we talk about trolleys (which reminds us, Bill Schopp never talks about 'em any more . . . can it be that "ol' two watch" is "off his trolley" . . . signed "Old Ski Nose") and you write thirsting for more info . . . E.S. Nielsen has an interurban (cast metal) using the H.P. MU power or the Kemtron diesel power unit. Very soon we will have available cast parts for trolleys from one we consider No. 1 man in TT trolley modeling, Marvin Grumet of Brooklyn, N. Y. Marvin, a jewelry designer, will make these parts available in lost wax castings, and the one's we have seen are A-1. The sage of Haworth, N. J., Sherman Elwood Dance ("just call me Sherm"), is not going to be left in the dust when it comes to the "wire stringing" fraternity, the Dance shops are slowly but surely evolving an item sure to make the eyes of "juice fans" sparkle.

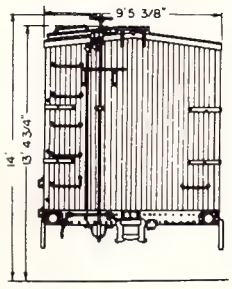
INCIDENTAL INTELLIGENCE

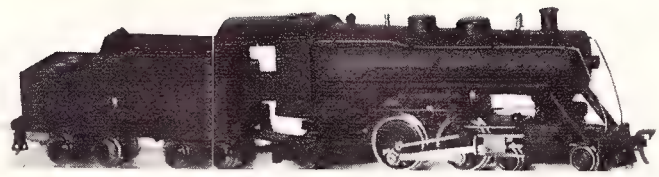
A query from us to Henry Schatz, TT pioneer and mail order dealer and producer of the EXCLUSIVE and novel "Fully lettered and painted Kemtron HOPPER sides deal" (Henry sells the Kemtron HOPPER, with sides painted and lettered in a choice of 9 sides, at NO extra cost, $3.25 with trucks, $2.00 without), resulted in the following 'score" on sides sold this past year. First in popularity (2to 1) was Texas and Pacific; 2nd was the Delaware, Lackawanna and Western; 3rd, Nickel Plate; 4th Canadian Pacific; 5th, Southern! 6th, (tied for 6th place) Pennsylvania and Elgin, Joliet and Eastern; 7th, Louisville and Nashville, and bringing up the rear, Bessemer and Lake Erie. S'funny how you pick 'em, really is no way of predicting what will be the most popular.

A manufacturer now working on some soon to be produced wood box cars would like to know what sides would be most in demand. We are NOT going out on any limbs! If you would like to help him and yourself, drop us a postcard, listing your first five choices. Simply address it to this page.

TT PLAN OF THE MONTH

Here is a wood boxcar, circa 1912, all wood except for the steel underframe This is a good car to model for your own road, 38 foot, easily built Northeastern scribed wood, and TT wood parts (roof, floor etc.) and can be varied by fitting metal ends (as were many of the prototypes) regular ladders or a steel panel door.





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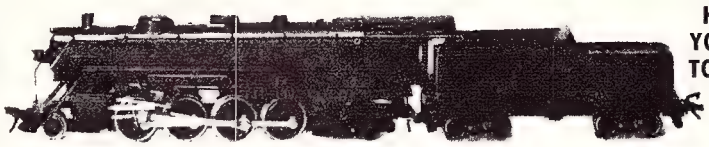

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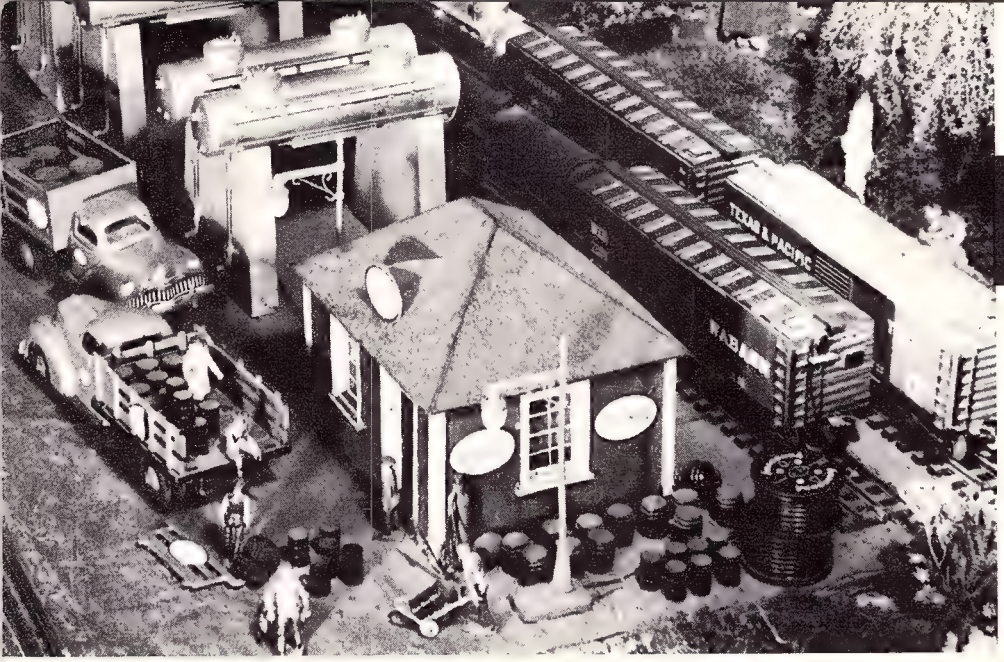

CONVERTING

HOWDY fellers. We've been getting in a lot of requests from readers for more information on how they can convert their Lionel sets to full scale operation and it occurs to us that there must be many fans who have O gauge tinplate sets who like the fine bulk and massiveness of O gauge but may be hesitant about going scale because of the seeming trend towards HO.

Actually it's more a question of numbers. Many of the newcomers start out in HO but there are just as many O gaugers as ever, perhaps even more. HO gauge is wonderful and offers many advantages of space, quality, variety, and price that are unmatchable. And certainly there are good things to be said about TT, OO, and S gauge as well. Many model builders think they're just about tops.

But in this writer's book, O gauge is still king and always will be. No other home gauge offers miniature trains that so closely aproximate the size and detail of the real thing. Sure, HO can pack more in but where but in O gauge can you look at model trains and get the same feeling of perspective that you do when you look at the real thing?

There's really no trick involved in converting from tinplate to scale. The easiest way to start is by buying yourself a simple freight car kit, such as a gondola or box car. Don't spend a lot of money. Get a good economical body kit and for the time being, mount a pair of tinplate trucks and couplers under it so that it'll run with your tinplate trains. After you add 4 or 5 cars, you can begin thinking about putting in some scale track.

WHAT ABOUT TRACK?

The old timers will tell you that model railroad track just isn't true to scale unless there are four spikes driven through every tie on which the rails are laid. Insofar as ultimate realism is concerned the old timer is absolutely right. Such trackage is tops for realism and it's not too expensive, either. Unfortunately, it has one drawback, and that is that it takes so much time to put down. Few of us are able to spend those long hours patiently putting in spikes.

To get around this job, some builders use only two spikes per tie, staggering them. Others use spikes only every 6 or 8 ties and glue the loose ties in place.

MIXING TOY AND SCALE CARS

For the beginner who is still operating mixed tinplate and scale equipment together, there is another answer which is very satisfactory, and that is to use flexible track. Flexible track comes in three foot lengths and may be bent as desired to any required radii. It can be operated with either regular scale track and also, with little or no difficulty, with tinplate tubular track. Both scale and tinplate wheels run on it perfectly and there are no spikes for the large tinplate flanges to hit, as may happen when you run tinplate cars on scale track.

One problem does arise and it will have to be decided upon in the early stages on conversion and that is the method of pickup. This month's chapter of How To Build A Model Railroad treats this subject in detail and briefly, it resolves itself around the choice of two rail, inside third rail (tinplate) or outside third rail. Since tinplate cars are not insulated for two rail (S gauge cars are, so S gaugers contemplating conversion to scale have no problem here), tinplate trucks would have to be changed and two-rail trucks substituted. The tinplate cars could also be traded off for scale equipment. The conversion of tinplate locomotives to two rail operation is to expensive to consider except in the case of engines such as the Lionel 700EW, or other ¼" 0-72 equipment.

OUTSIDE THIRD RAIL

If you choose outside third rail, still favored by many O gaugers, you will be able to continue using your tinplate euipment indefinitely. In this case it is only necessary to remove the center third rail pickup shoes and substitute outside third rail shoes. These are relatively inconspicuous and certainly better in apearance than the center third rail, (whatever center third rail may lack in appearance, it must be admitted that it is still far and above the most foolproof system yet devised for model railroad pickup). Each locomotive will require two pickup shoes and you may want to install them on illuminated cars as well. Any O gauge hobby dealer stocks them.

Outside third rail isn't difficult to putdown and the main consideration to consider is keeping the third rail at always the same height above the running rails. The National Model Railroad Association long ago developed a standard for the third rail height, as well as for most other track specifications and you'll want to abide by these

FROM TINPLATE TO SCALE

Getting started in scale model railroading is a lot easier than you might think. Tim Plate tells how to get started using all of your present O gauge tinplate equipment plus a few new items.

by Tim Plate

dimensions so that the equipment of other hobbyists will run on your track.

SCALE COUPLERS

You'll gradually want to swing over to scale couplers, too, even though they don't function as well automatically as the tinplate knuckle couplers. Perhaps some scale modelers have compromised and are using Lionel or Auburn knuckle couplers on scale equipment. If there are, let's see pictures and hear how they work out. You don't have to change all couplers at once, in any event. Fix up one or two cars so that they have a tinplate coupler on one end and a scale coupler on the other. Then you can operate with both types in one train.

Some of you may want to know if O gauge is expensive. It does cost more than most comparable equipment in the smaller gauges but not excessively so. Five dollars will buy any of a number of fine car kits and scale O gauge locomotive kits run from $20-25 and up. If you want to spend money, and have the money to spend, there is almost no limit as to the real model building gems that can be purchased in O gauge.

Most kits are easy to build and a lot of fun, too. You'l need some hand tools but don't worry about soldering since very few kits require solder. Ask your dealer for kits suitable for a beginner, in case you've never built any kit before. If your dealer only has HO in stock, you may have to have him order O gauge kits especially for you or you will have to order by mail. A number of reliable mail order houses carrying O gauge advertise in RMC.

HOW MUCH SPACE?

Certainly if HOers can build an HO layout on a table 3x4', there is no reason an O gauge modeler couldn't build his empire on a 6x8' table. A layout this size wouldn't allow the use of big engines and those wonderfully long full length 85' O gauge passenger cars but it's adequate for plenty of switching and freight and maybe a 4-4-0 with a couple of open end coaches attached.

If you can afford the luxury of larger space, there is no limit as to what can be done with O gauge. Some of the large new ranch homes provide space for an O gauge empire never before dreamed possible

Where space is cramped, O gauge trolleying offers a lot of fun and you can still run freight cars, too. O gauge trolleys take curves as sharp as 9" in radius, less than that required by most locomotives in HO gauge.

Well, that about finishes Tim up for April. Hope you HOers don't boil over at any of my remarks about HO. I mentioned HO only as a means of comparison, but like they say, to each his own. Me, I'll take O gauge.

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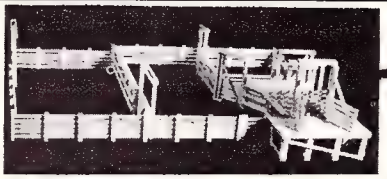

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EXCHANGE passes with other model railroaders. Elihu Massel, 138-23 224th St., Laurelton 13, L. I., N. Y.

SWAP OR CASH: Eastman Bantam special camera with f.2 lens for anything in HO gauge. Want O gauge loco and cars. J. C. Hayden River Glen Rd., Elmhurst, Ill.

WANTED: Lionel std. and OO gauge. Also AF O gauge. Send list. Dr. John B. Street, Dana Point Medical Dental Center, Dana Point, Calif.

TRADE: Have Mantua Booster, no cplrs., minus footboards, Weller soldering gun. Model D-440, 120 v. 1.5 amp. 60 cyc. exc. cond. Trade for Diesel switcher—prefer Hobbytown or International. T. Anderson, 91A Dowling Ave., Toronto, Ont., Canada.

FOR SALE: Mantua shifter with valve gear ex. cond. $12.00. Hobbyline diesel switcher gd. cond. $7.00 1 Tower switch machine controller new $1.25; 6 Atlas switch kits No. 6 new 75c ea. 4 Casey Jones switch machines 50c ea. 2 No. 6 left switches assembled $1.00 ea. All for $25.00. E. Scheer, New Lenox, Ill.

WANTED: Lionel GG1 2330 or 2332 elec. engines. Give price and cond. W. H. Sherwood, 6815 Reseda Blvd., Reseda, Calif.

FOR SALE: Large Lionel O gauge layout worth over $475. Sacrifice for $250.00. Send stamped envelope for list. L. Wamsher, Douglassville, R.D. 1, Pa.

WILL SWAP: Model Craftesman Vol. 1, No. 1 March 1933, fine cond. for Lionel O motive power and/or equip. D. M. Ewen, 536 Essex St., Weymouth 88, Mass.

TRADE: Pre-war HO AF track, 46 sections straight and curved, 2 switches, 1 cross new cond. 1 type Q 75 w. Lionel transformer, want HO road diesel. Make offer. Wesley Mamrose, 132 Second St., E. Pittsburgh, Pa.

FOR SALE: 160 HO gauge frt. cars plus 1 steam type engine plus parts $160.00. Will send in smaller groups. Stamp for list. W. D. Richardson, 275 Marion Ave., Painesville, Ohio.

FOR SALE: Lionel equip. very gd. cond. very cheap. Will trade for HO in gd. cond., preferably kits. Stamp for list. W. Farr, George School, Pa.

FOR SALE OR TRADE: 1/16" mahagony plywood sheets, 3¾" x 12", scale lumber cut to specifications. Want Lionel 027 frt. cars. H. Dammers, Franklin Lakes N. J.

SELL OR TRADE: 4 elec. motors for turntables, etc. 1 Lionel motor No. 333M, 1 phonograph motor, 2 elec. clock motors cash or HO. Best offer. R. Rosica, 676 Cedar Lane, Teaneck, N. J.

CANADIANS: Will trade 75-100 Aircraft magazines, 1940-45, Flying, Canadian Aviation, etc. in gd. cond. for HO locos or rolling stock. T. F. McKenna, Wyoming, Ont., Canada.

SELL OR TRADE: O and HO scale kits, also S gauge scale and tinplate for cash or S gauge tems. Swap my lst for yours. E. C. Fletcher, County St., Rehoboth, Mass.

FOR SALE: Giant size mag. coll. rr. hobby and photo. Write for complete list. Would like to correspond with anyone interested. A. Dubar, 32 Laurel St., Athol, Mass.

WANTED: Lionel 624 C & O switcher, 1122 R.C. switches, 2421 or 2422 or 2429 pass. cars, 6460 crane car, 6419 work caboose and 3469 operating dump car. State price and cond. Gary Goodwin, 1715 Lawrence, Saginaw, Mich.

SELL OR TRADE: New AF engines, cars frt. and pass., back issues Model Builders, TOY TRAINS, Miniature Railroader, HO Monthly, Trains, Model R.R., Railroad Magazine, 68 pr. 4 wheel trucks for O gauge. Will trade for older materials to be used for repairing as gifts next fall as private project. E. Turnier 52 Five Corners, Jersey City, N. J.

FOR SALE: Lionel equip., price not important. Changing gauge 40 to 50% off, hardly used. 072 straight and curved track, switches, transformers, 763E Hudson, Berkshire, Diesels, etc. Send stamp for list. T. G. Richards, 5623 N. Newcastle Ave., Chicago 31, Ill.

FOR SALE: Sperry rail car gas-elec. $10.00. DC-60 motor $3.00. Back copies M.R.R. 1951, 1952, 1953 $2.00 yr. or lot $5.00. Chas. Miller, 309 View St., Covington, Ky.

FOR SALE OR TRADE: Varney diesel switcher, dual drive. 1 Mantua shifter, want pacific or mike. Bennett Jones, 429 Va. Ave., Athens Tenn.

SELL OR SWAP: Plasticville U.S.A. in O gauge for HO gauge. All new. Write for prices and list. Herbert Kropnick, 28 Basswood Rd., Levittown, Pa.

FOR SALE: Lionel set, perfect cond., double diesel, 3 pass. cars, track 027, transformer, etc. Cost $75 will sell for $35. or dicker. Carl Rodak, 12 Van Dorn St., Saratoga Springs, N. Y.

WANTED: New, Never run Lionel, 2 motor, 2330 GG-1 loco. State price. All letters answered. Barry August, 1519 25th St., S.E. Washington 20, D. C.

WANTED: Std. Gauge Eng., cars, access. Trolleys—any make or cond. Pay cash or trade chinchillas. H. G. Morley, 6207 So. Rimpau Blvd., Los Angeles 43, Calif.

FOR SALE: Lionel Berkshire loco. $33.00, new exc. cond. Chaging to HO. Michael Hough, 73 Hamilton Ave., Staten Island 1, N. Y.

WANTED: HO steam loco. cars or track. Have Lionel O to trade. Stamp for list. Bill Edmondson, P.O. Box 427, Carlsbad, New Mexico.

WILL SELL OR TRADE: Lionel engine and tender No. 1666, 2 operating box cars, 1 stock car, 1 tank car, 1 gondola, switches, crossover, track, $25.00 or trade for HO. Conrad Brown, 93 Esther St., Franklin Square, L. I., N. Y.

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TRADE: TT. All or part, 30' prefab flexible track, 30' flexible cork roadbed, 2 No. 6 pre-fab left turnouts. All unused, for anything of equal value in TT. Lt. Col. O. J. Ridenour, P. O. Box 1395, Baltimore 3, Md.

TRADE OR SELL: Varney A & B units, F3's. Powered, Exc. cond. for steam loco. or sell for $25.00. J. B. Owens, Box 214, Fairmount, Ga.

FOR SALE OR TRADE: OO gauge rail, switches, Tru-scale roadbed and frt. trucks. Also new kits and bilt up locos. and cars in HO gauge. Send stamped envelope for list. J. Caldwell, 210 W. 14th St., Rushville, Ind.

CONTRIBUTIONS WANTED: Christ Church Model RR Club for boys desires anything that might be used on an O gauge tinplate layout under construction. Any items, any cond. gratefully accepted. Reimbursement for parcel post. All donations acknowledged. Rev. D. T. P. Bradley, 103 Elm St., Yonkers, N. Y.

FOR SALE: AF S gauge layout gd. cond. worth $600.00. Sell for $200.00. Send for list. R. Barnes, 555 W. Lindley Ave., Philadelphia 20, Pa.

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FOR SALE: HO Penn line and Mantua mikados 30% off. Mantua Pacific $15. HO cars, switch kits, and transformer up to 50% off. Stamp for list. W. Carlson, 335 Ridgeland Ave., Elmhurst, Ill.

FOR SALE: Lionel locos. cars, switches, access. Perfect cond. Stamp for list. G. L. Brunner, 2810 W. Master St., Philadelphia 21, Pa.

WANTED: Old used or broken parts of AF S gauge equip. and locos. Floyd Lewis, R.D. No. 6, Strathmill Rd., Binghamton, N. Y.

WANTED TO Buy or rent, lithographs of Ps4 type Pacifics used on the Southern RR. Dan Moss, 405 Byron Ave., Jackson Hts., Mobile, Ala.

FOR SALE: AF O gauge 3 rail set new, Hudson loco. and tender. 8 frt. cars, 1 Auto. mail car, 1 Army unload. car, 7 doz. pcs. track, 1 pr. switches, 1 crossover, 1 large transformer, 1 station, 1 water tower, 2 RR crossings, 2 street lamps. 1 uncoupler and 1 electro-magnet crane. Bargain at $75.00. W. J. Nieland, 7121 N. McAlpin, Chicago, Ill.

WANTED: Lionel Std. gauge pass. cars 412, 413, 414 and 416 in tan. Cash or trade std. gauge items. Interested in corresponding with other std. gauge collectors. R. J. Noren, Jr., 316 Barry Ave., Chicago 14, Ill.

FOR SALE: Std. gauge Lionel trains, steam engine, frt. and pass. cars, track, transformer station, two switches, platform and diner. Best offer. J. P. Owens, 40-A Richfield St., Clifton, N. J.

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TRADE: Gd. foreign stamps, singles and complete sets for Lionel O gauge or Marklin HO gauge trains or equip. in gd. cond. Harry Holland, 604-16th St., Virginia Beach, Va.

FOR SALE: HO frt., pass. cars, diesel and parts. List for stamp. E. Thomas, 10009½ S. Main St., Los Angeles 3, Calif.

WANTED: S and HO kits or equip. in gd. cond. in trade for gd. quality foreign and U. S. stamps at gd. discount from 1955 Scott catalog value. Send list with your valuation for my offer. D. Lawlor, 2912 Troost Ave., Kansas City 9, Missouri.

FOR SALE: Lionel 2065, 6464 W.P., 6460 crane. Thomas Shawnee Exp. and 4 coaches. All excel. cond. A. E. Mack, Truro, Iowa.

HAVE: Lionel set No. 1511S 4 car frt. $32.95, set No. 1505WS 4 car frt. $49.94, auto. switches 027, $13.50, auto box car No. 6468 $5.50, box car No. 6464, $5.50. Trade for equal value in anything HO or sell for cash at 40% off f.o.b. J. Kowalski, P. O. Box 892, Rancho, Santa Fe, Calif.

TRADE: Asst. of HO scale engines and frt. cars for Maerklin HO or camera equip. Write for list. V. M. Gaspar, 2059 Evansdale, Toledo 7, Ohio.

SELL: 3 Kasiner shorty streamline cars and Devore trucks. Unopened kits, $7.00. Robert H. Nuhn, 630 Princeton Ave. Elyria, Ohio.

WANT TO SWAP: 1 steel and brass custom bit. lift bridge O gauge, 3 rail scale track mounted in bridge. Complete except power and weighs approx. 30 lbs. Bit. by wellknown modeler. Cost approx. $150.00 Suitable for club or large layout. Wish motive power or cars of equal value in O gauge. C. Bowman, 1917 College St. Columbia, S. C.

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MOST ISSUES of first 9 years MODEL CRAFTSMAN. Cash or stamps. .60 ea. or trade for pre-1940 Lionel catalogs. E. Stone, Berwyn-Paoli Rd., R. D., Berwyn, Pa.

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SWAP: Varney 10 wheeler, condition fair, for M.D.C. 0-6-0 or booster. John Hughes, 103 Warren St., Lynn, Mass.

FOR SALE: Mantua shifter, unpainted, working valve gear, test run only $12.00. 2 Mantua flat cars, one gondola, one 4 wh. caboose, all new, $1.00 ea. R. Foster, 1319 E. 4th Ave., Bay Shore, N. Y.

TRADE: TT gauge, parts for H.P. 2-6-0 and 2-8-0 diesel power truck w/trailer and 3 coaches and one obs. car for H.P. 4-4-2 or 2-8-0 1/tender. Eugene Millnix, Box 1047 Carmel, Calif.

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TRADE OR SELL: Scott International Album I with 2000 mounted stamps. Also Std. catalog 1948 total approx. value $30. for Lionel or HO equip. Send terms. S. Hughes, 87 Scooter Lane, Hicksville, N. Y.

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FOR SALE: Lionel war time model of 1944 No. 1684 w/tender. 1680 shell, 1679 Baby Ruth box car, 1682 caboose. Gd. cond. Reasonable. Bob LaBreche, 556 Franklin Ave., Hartford 14, Conn.

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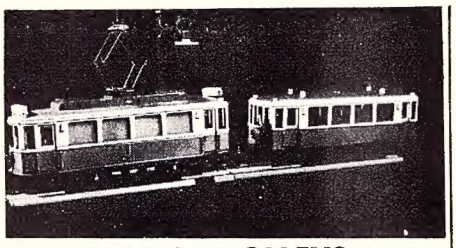

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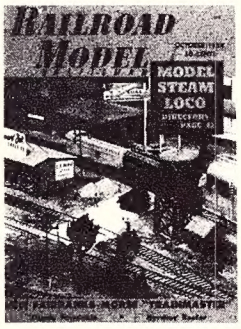

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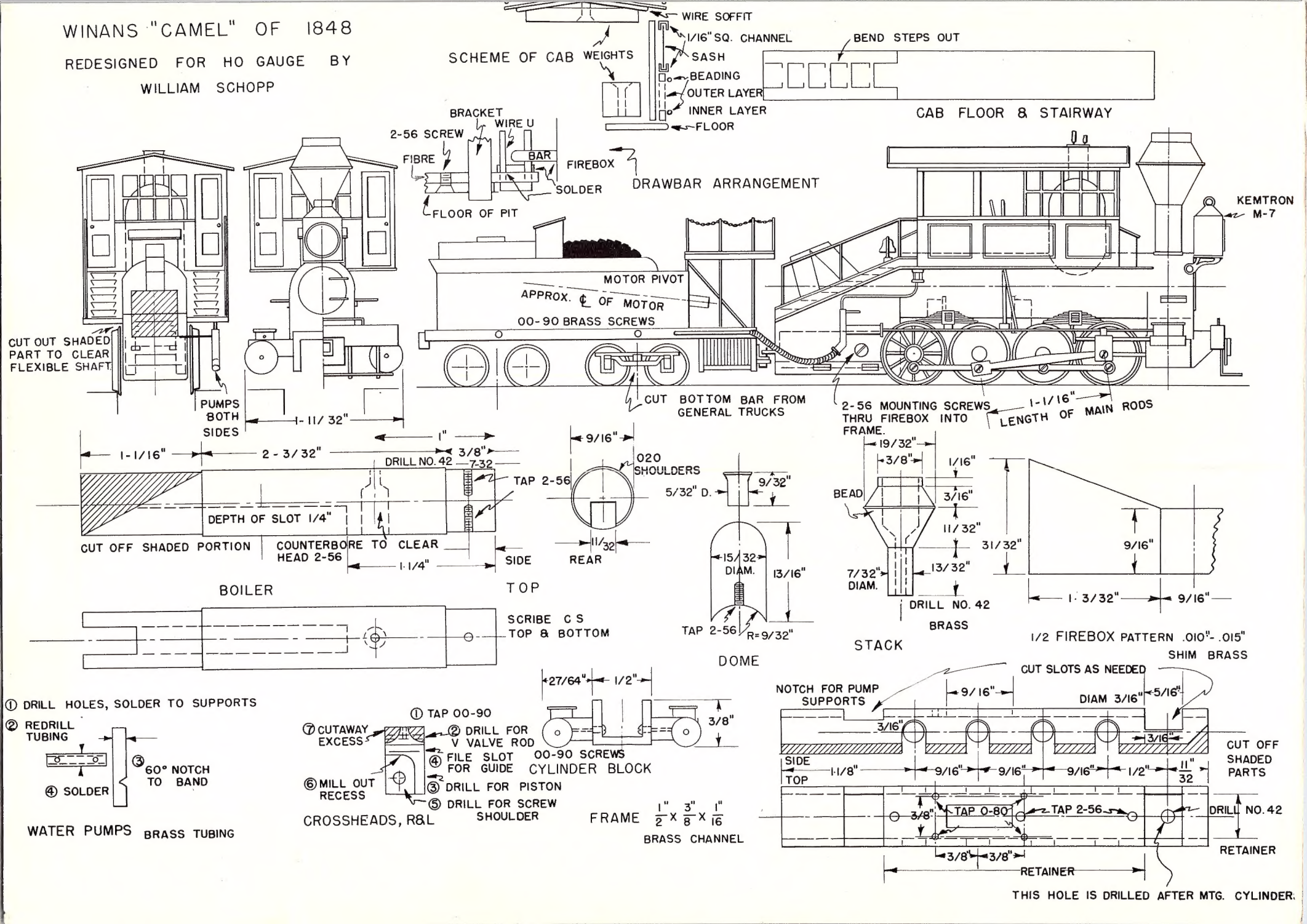

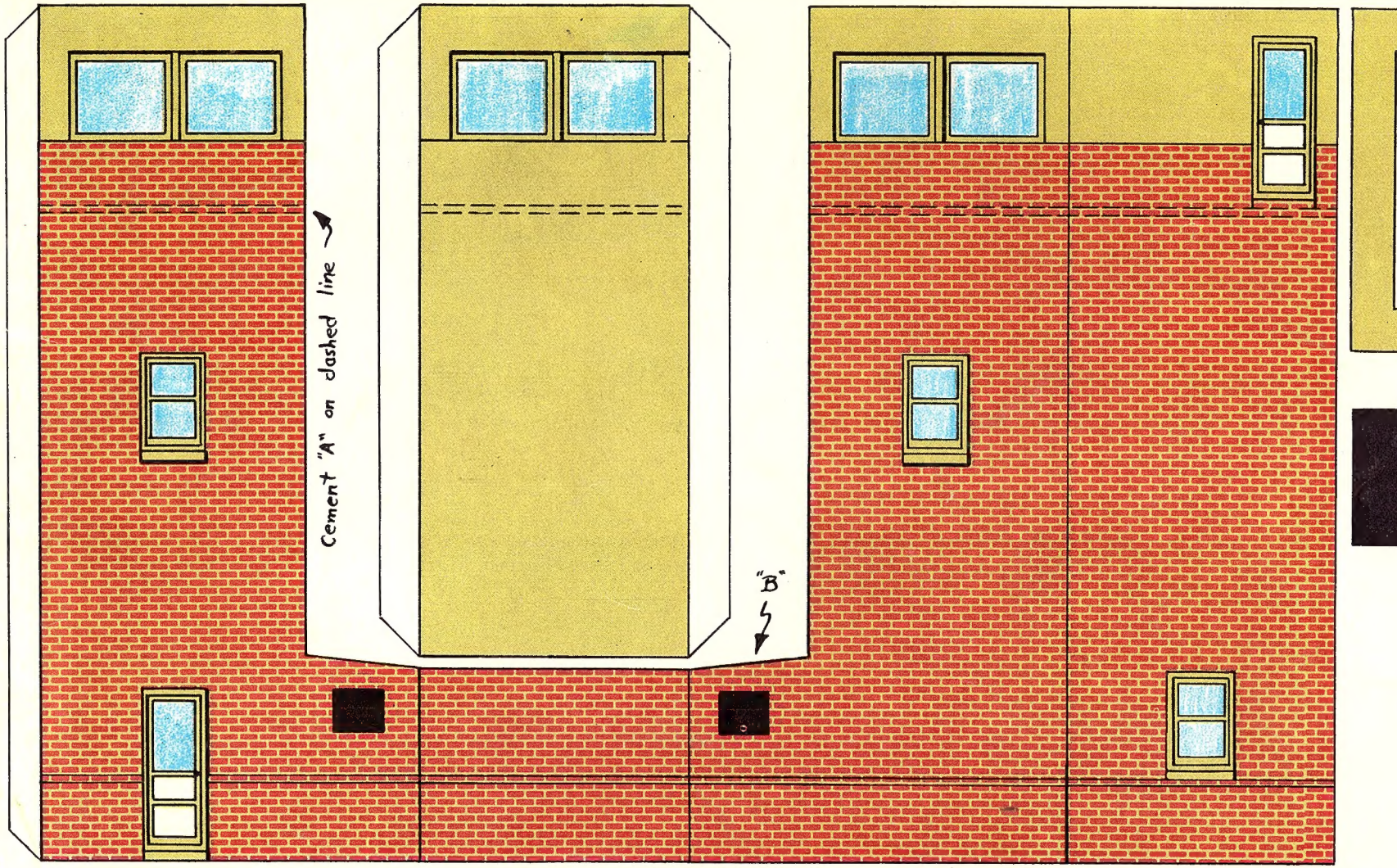

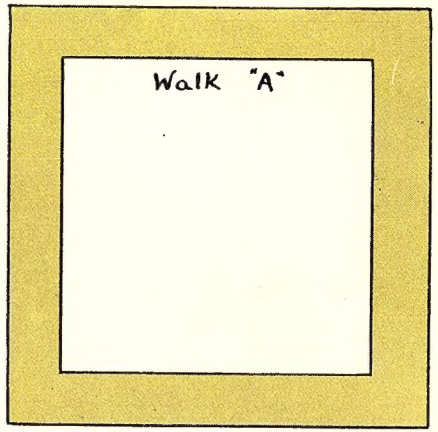

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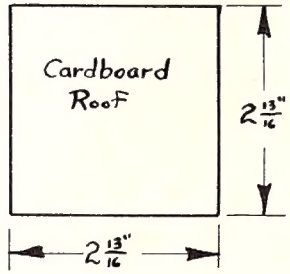

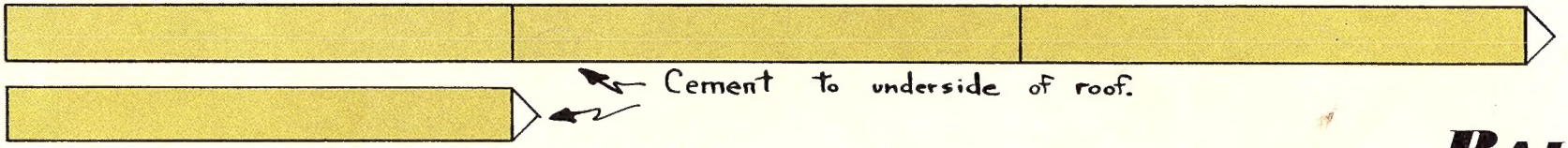

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